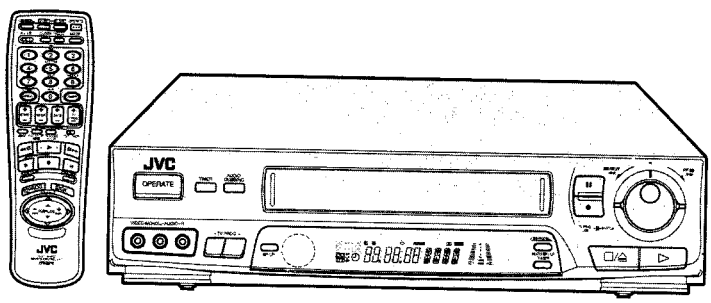
JVC

SERVICE MANUAL

VIDEO CASSETTE RECORDER

HR-J638E/EH



SHOWVIEW

Hi-Fi VHS PAL

SPECIFICATIONS

GENERAL

Power requirement	: AC 220 – 240 V~, 50/60 Hz
Power consumption	: 24 W
Temperature	
Operating	: 5°C to 40°C
Storage	: -20°C to 60°C
Operating position	: Horizontal only
Dimensions (WxHxD)	: 400 x 94 x 340 mm
Weight	: 4.3 kg
Format	: VHS PAL standard
Maximum recording time	
(SP)	: 240 min. with E-240 video cassette
(LP)	: 480 min. with E-240 video cassette

VIDEO/AUDIO

Signal system	: PAL-type colour signal and CCIR monochrome signal,625 lines 50 fields
Recording system	: DA4 (Double Azimuth) head helical scan system
Signal-to-noise ratio	: 45 dB
Horizontal resolution	: 250 lines
Frequency range	: 70 Hz to 10,000 Hz (Normal audio) 20 Hz to 20,000 Hz (Hi-Fi audio)
Input/Output	: 21-pin scart connectors (IN/OUT x 1, IN/DECODER x 1) RCA connectors (VIDEO IN x 1, AUDIO IN x 1, AUDIO OUT x 1)

TUNER/TIMER

TV channel storage capacity	: 99 positions (+AUX position "AU")
Tuning system	: Frequency synthesized tuner
Channel coverage	: VHF 47 – 89/104 – 300/ 302 – 470MHz UHF 470 – 862MHz
Aerial output	: UHF channel 36 (Adjustable 32 – 40)
Memory backup time	: Approx. 60 min.

ACCESSORIES

Provided accessories	: RF cable, Infrared remote control unit, "R6" battery x 2

Specifications shown are for SP mode unless otherwise specified.
E.& O.E. Design and specifications subject to change without notice.

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Important Safety Precautions

Prior to shipment from the factory, JVC products are strictly inspected to conform with the recognized product safety and electrical codes of the countries in which they are to be sold. However, in order to maintain such compliance, it is equally important to implement the following precautions when a set is being serviced.

● Precautions during Servicing

1. Locations requiring special caution are denoted by labels and inscriptions on the cabinet, chassis and certain parts of the product. When performing service, be sure to read and comply with these and other cautionary notices appearing in the operation and service manuals.

2. Parts identified by the ⚠ symbol and shaded (▒) parts are critical for safety.
   Replace only with specified part numbers.
   Note: Parts in this category also include those specified to comply with X-ray emission standards for products using cathode ray tubes and those specified for compliance with various regulations regarding spurious radiation emission.

3. Fuse replacement caution notice.
   Caution for continued protection against fire hazard.
   Replace only with same type and rated fuse(s) as specified.

4. Use specified internal wiring. Note especially:
   1) Wires covered with PVC tubing
   2) Double insulated wires
   3) High voltage leads

5. Use specified insulating materials for hazardous live parts. Note especially:
   1) Insulation Tape
   2) PVC tubing
   3) Spacers
   4) Insulation sheets for transistors
   5) Barrier

6. When replacing AC primary side components (transformers, power cords, noise blocking capacitors, etc.) wrap ends of wires securely about the terminals before soldering.

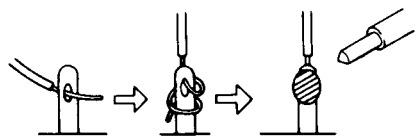


Fig. 1

7. Observe that wires do not contact heat producing parts (heatsinks, oxide metal film resistors, fusible resistors, etc.)

8. Check that replaced wires do not contact sharp edged or pointed parts.

9. When a power cord has been replaced, check that 10—15 kg of force in any direction will not loosen it.

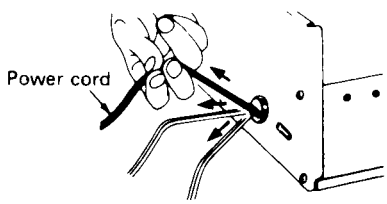


Fig. 2

10. Also check areas surrounding repaired locations.

11. Products using cathode ray tubes (CRTs)
    In regard to such products, the cathode ray tubes themselves, the high voltage circuits, and related circuits are specified for compliance with recognized codes pertaining to X-ray emission. Consequently, when servicing these products, replace the cathode ray tubes and other parts with only the specified parts. Under no circumstances attempt to modify these circuits. Unauthorized modification can increase the high voltage value and cause X-ray emission from the cathode ray tube.

12. Crimp type wire connector
    In such cases as when replacing the power transformer in sets where the connections between the power cord and power transformer primary lead wires are performed using crimp type connectors, if replacing the connectors is unavoidable, in order to prevent safety hazards, perform carefully and precisely according to the following steps.

    1) **Connector part number** : E03830-001
    2) **Required tool** : Connector crimping tool of the proper type which will not damage insulated parts.
    3) **Replacement procedure**
       (1) Remove the old connector by cutting the wires at a point close to the connector.
       Important : Do not reuse a connector (discard it).

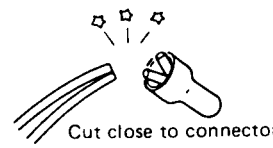


Fig. 3

(2) Strip about 15 mm of the insulation from the ends of the wires. If the wires are stranded, twist the strands to avoid frayed conductors.

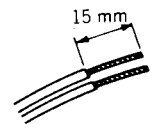


Fig. 4

(3) Align the lengths of the wires to be connected. Insert the wires fully into the connector.

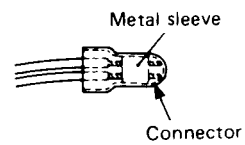


Fig. 5

(4) As shown in Fig. 6, use the crimping tool to crimp the metal sleeve at the center position. Be sure to crimp fully to the complete closure of the tool.

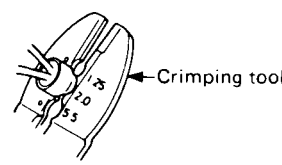


Fig. 6

(5) Check the four points noted in Fig. 7.

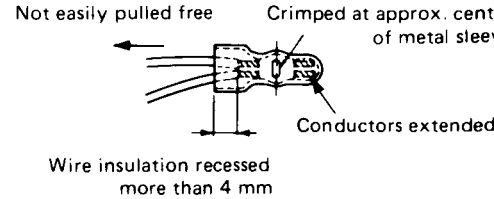

Not easily pulled free
Crimped at approx. center of metal sleeve
Conductors extended
Wire insulation recessed more than 4 mm

Fig. 7

● Safety Check after Servicing

Examine the area surrounding the repaired location for damage or deterioration. Observe that screws, parts and wires have been returned to original positions, Afterwards, perform the following tests and confirm the specified values in order to verify compliance with safety standards.

1. **Insulation resistance test**
   Confirm the specified insulation resistance or greater between power cord plug prongs and externally exposed parts of the set (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.). See table 1 below.

2. **Dielectric strength test**
   Confirm specified dielectric strength or greater between power cord plug prongs and exposed accessible parts of the set (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.). See table 1 below.

3. **Clearance distance**
   When replacing primary circuit components, confirm specified clearance distance (d), (d') between soldered terminals, and between terminals and surrounding metallic parts. See table 1 below.

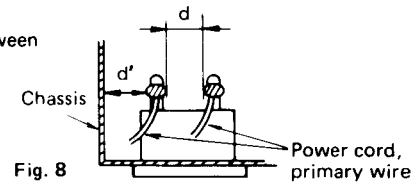


Fig. 8

4. **Leakage current test**
   Confirm specified or lower leakage current between earth ground/power cord plug prongs and externally exposed accessible parts (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.).
   Measuring Method: (Power ON)
   Insert load Z between earth ground/power cord plug prongs and externally exposed accessible parts. Use an AC voltmeter to measure across both terminals of load Z. See figure 9 and following table 2.

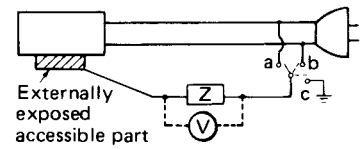


Fig. 9

5. **Grounding (Class I model only)**
   Confirm specified or lower grounding impedance between earth pin in AC inlet and externally exposed accessible parts (Video in, Video out, Audio in, Audio out or Fixing screw etc.).
   Measuring Method:
   Connect milli ohm meter between earth pin in AC inlet and exposed accessible parts. See figure 10 and grounding specifications.

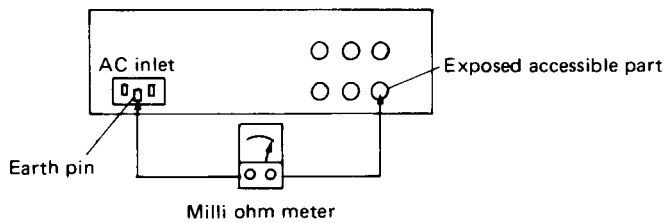


Fig. 10

Grounding Specifications

Region	Grounding Impedance (Z)
USA & Canada	Z ≦ 0.1 ohm
Europe & Australia	Z ≦ 0.5 ohm

AC Line Voltage	Region	Insulation Resistance (R)	Dielectric Strength	Clearance Distance (d), (d')
100 V	Japan	R≧1 MΩ/500 V DC	AC 1 kV 1 minute	d, d' ≧ 3 mm
100 to 240 V			AC 1.5 kV 1 minute	d, d' ≧ 4 mm
110 to 130 V	USA & Canada	–	AC 1 kV 1 minute	d, d' ≧ 3.2 mm
110 to 130 V 200 to 240 V	Europe & Australia	R≧10 MΩ /500 V DC	AC 3 kV 1 minute (Class II) AC 1.5 kV 1 minute (Class I)	d ≧ 4 mm d' ≧ 8 mm (Power cord) d' ≧ 6 mm (Primary wire)

Table 1 Specifications for each region

AC Line Voltage	Region	Load Z	Leakage Current (i)	a, b, c
100 V	Japan	1 kΩ	i ≦ 1 mA rms	Exposed accessible parts
110 to 130 V	USA & Canada	0.15 μF, 1.5 kΩ	i ≦ 0.5 mA rms	Exposed accessible parts
110 to 130 V 220 to 240 V	Europe & Australia	2 kΩ	i ≦ 0.7 mA peak i ≦ 2 mA dc	Antenna earth terminals
		50 kΩ	i ≦ 0.7 mA peak i ≦ 2 mA dc	Other terminals

Table 2 Leakage current specifications for each region

Note: These tables are unofficial and for reference only. Be sure to confirm the precise values for your particular country and locality.

INSTRUCTIONS

Safety Precautions

The rating plate and the safety caution are on the rear of the unit.

WARNING: DANGEROUS VOLTAGE INSIDE
WARNING: TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS UNIT TO RAIN OR MOISTURE.

CAUTION
- When you are not using the recorder for a long period of time, it is recommended that you disconnect the power cord from the mains outlet.
- Dangerous voltage inside. Refer internal servicing to qualified service personnel. To prevent electric shock or fire hazard, remove the power cord from the mains outlet prior to connecting or disconnecting any signal lead or aerial.

WARNING
There are two different types of SECAM colour systems: SECAM-L, used in FRANCE (also called SECAM-West), and SECAM-B, used in Eastern European countries (also called SECAM-East).
1. This recorder can also receive SECAM-B colour television signals for recording and playback.
2. Recordings made of SECAM-B television signals produce monochrome pictures if played back on a video recorder of SECAM-L standard, or do not produce normal colour pictures if played back on a PAL video recorder with SECAM-B system incorporated (even if the TV set is SECAM-compatible).
3. SECAM-L prerecorded cassettes or recordings made with a SECAM-L video recorder produce monochrome pictures when played back with this recorder.
4. This recorder cannot be used for the SECAM-L standard. Use a SECAM-L recorder to record SECAM-L signals.

For Italy:
"It is declared that this product, brand JVC, conforms to the Ministry Decree n. 548 of 28 Aug.'95 published in the Official Gazette of the Italian Republic n. 301 of 28 Dec.'95"

VHS HQ ShowView

- Only cassettes marked "VHS" can be used with this videorecorder.
- HQ VHS is compatible with existing VHS equipment.
- ShowView is a trademark applied for by Gemstar Development Corporation. The ShowView system is manufactured under licence from Gemstar Development Corporation.

IMPORTANT
- Please read the various precautions on this page before installing or operating the recorder.
- It should be noted that it may be unlawful to re-record pre-recorded tapes, records, or discs without the consent of the owner of copyright in the sound or video recording, broadcast or cable programme and in any literary, dramatic, musical, or artistic work embodied therein.

The OPERATE button does not completely shut off mains power from the unit, but switches operating current on and off.

Video tapes recorded with this video recorder in the LP (Long Play) mode cannot be played back on a single-speed video recorder.

Failure to heed the following precautions may result in damage to the recorder, remote control or video cassette.

1. DO NOT place the recorder . . .
... in an environment prone to extreme temperatures or humidity.
... in direct sunlight.
... in a dusty environment.
... in an environment where strong magnetic fields are generated.
... on a surface that is unstable or subject to vibration.

2. DO NOT block the recorder's ventilation openings.
3. DO NOT place heavy objects on the recorder or remote control.
4. DO NOT place anything which might spill on top of the recorder or remote control.
5. AVOID violent shocks to the recorder during transport.

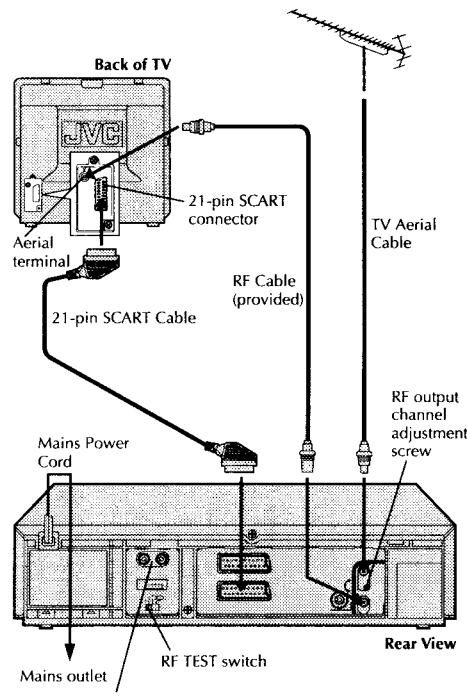
MOISTURE CONDENSATION

Moisture in the air will condense on the recorder when you move it from a cold place to a warm place, or under extremely humid conditions—just as water droplets form in the surface of a glass filled with cold liquid. Moisture condensation on the head drum will cause damage to the tape. In conditions where condensation may occur, keep the recorder turned on for a few hours to let the moisture dry.

ABOUT HEAD CLEANING

Accumulation of dirt and other particles on the video heads may cause the playback picture to become blurred or interrupted. Be sure to contact your nearest JVC dealer if such troubles occur.

Basic Connections



AUDIO OUT(put) connectors
For connection to the audio input connctors on a Hi-Fi stereo system

Tune The TV To Your Video Recorder

It's essential that your video recorder be properly connected. Follow these steps carefully. THESE STEPS MUST BE COMPLETED BEFORE ANY VIDEO OPERATION CAN BE PERFORMED.

1 CHECK CONTENTS

Make sure the package contains all of the accessories listed in "Specifications" (☞ back cover).

2 SITUATE RECORDER

Place the recorder on a stable, horizontal surface.

3 CONNECT RECORDER TO TV

The connection method you use depends on the type of TV you have.

RF CONNECTION
- *To Connect To A TV With NO AV Input Terminals . . .*
  - **a–** Disconnect the TV aerial cable from the TV.
  - **b–** Connect the TV aerial cable to the ANT. IN jack on the rear panel of the recorder.
  - **c–** Connect the provided RF cable between the RF OUT jack on the rear panel of the recorder and the TV's aerial terminal.

Before operating the recorder, make sure the TV's channel is set to the VIDEO channel.

AV CONNECTION
- *To Connect To A TV With AV Input Terminals . . .*
  - **a–** Connect the aerial, recorder and TV as per "RF CONNECTION".
  - **b–** Connect an optional SCART cable between the AV1 IN/OUT socket on the rear panel of the recorder and the TV's 21-pin SCART connector.
  - **c–** Set the RF TEST switch to OFF.

Before operating the recorder, make sure the TV is set to the VIDEO (or AV) mode.

4 CONNECT RECORDER TO MAINS

Plug the end of the mains power cord into a mains outlet.

The video recorder sends picture and sound signals via the RF connecting cable to your TV on UHF channel 36.

1 TURN ON THE RECORDER

Press **OPERATE**.

2 SELECT OUTPUT MODE

Set the **RF TEST** switch on the back of the recorder to ON.

CONTINUED ON NEXT PAGE.

3 SET TV CHANNEL

Set your TV to the video channel (UHF channel 36). Two white bars appear on screen vertically.

- Tune the TV until the bars are as clear as they can be.
- Your TV should be set to the channel designated for use with a video recorder, or to a spare channel if there is not a specified video channel on your TV.

4 RESET OUTPUT MODE

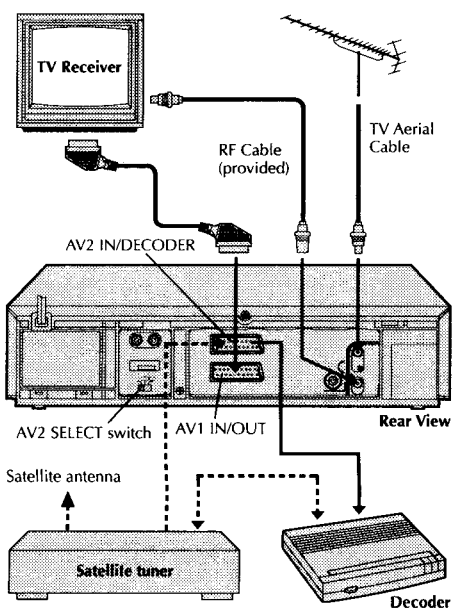
Return the **RF TEST** switch to OFF.

NOTES:

- *If CH36 is occupied by a local station, adjust the RF output channel adjustment screw to use another channel between CH32 and CH40 instead.*
- *If some interference noise is continually seen on the screen, consult your JVC dealer.*

Connecting/ Using A Decoder

The AV2 IN/DECODER connector can be used as an input terminal for an external decoder (descrambler). Simply connect a decoder and you can enjoy the variety of programming that is available through scrambled channels.



1 SELECT INPUT MODE

Set the **AV2 SELECT** switch to "DECODER".

2 CONNECT DECODER

Connect your recorder's AV2 IN/DECODER connector to the decoder's Euroconnector using a 21-pin SCART cable.

3 SET TUNER

Follow the procedure starting on page 5.

NOTE:

When Connecting A Satellite Tuner . . .

. . . if you don't have a decoder connect the satellite tuner directly to the video recorder's AV2 IN/DECODER connector.

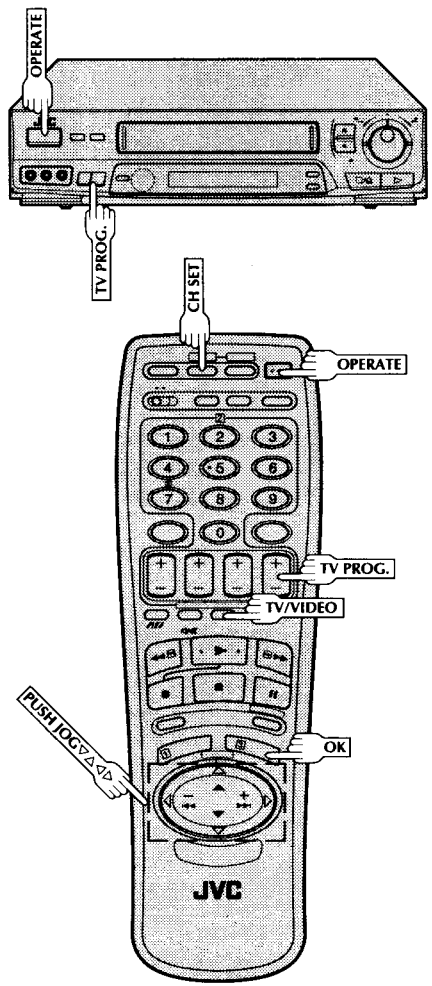
. . . if you have a decoder, first connect the decoder to the decoder input of the satellite tuner, then connect the satellite tuner's output to the recorder's AV2 IN/DECODER connector. Refer to the instruction book for the satellite tuner and decoder.

*. . . set the **AV2 SELECT** switch to "AV2".*

*. . . to view a programme via the satellite tuner, select AU 2 mode by pressing **TV PROG.** until "AU 2" appears on the display panel.*

Tuner Set

Turn on the TV and select the VIDEO channel (or AV mode).



Your recorder needs to memorise all necessary stations in channel positions in order to record TV programmes. ATS+ (Auto Tuning System) automatically assigns all receivable stations in your area to call them up with the **TV PROG.** buttons without going through any vacant channels.

The following procedure describes how to select automatic channel setting.

1 TURN ON THE RECORDER

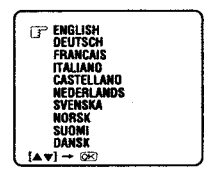
Press **OPERATE**.

2 ACCESS LANGUAGE SCREEN

Press and hold **CH SET** for more than 2 seconds. The Language screen appears.

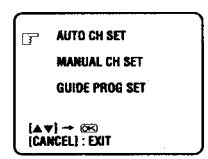
3 SELECT LANGUAGE

Press **PUSH JOG△▽** to place the pointer next to the language of your choice, then press **OK** to enter your selection. The Ch. Set mode menu appears.



4 SELECT MODE

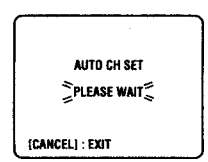
"AUTO CH SET" is the necessary mode for this procedure, so simply press **OK** to enter the selection. The Country select screen appears.



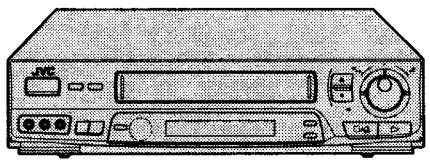
5 SELECT COUNTRY

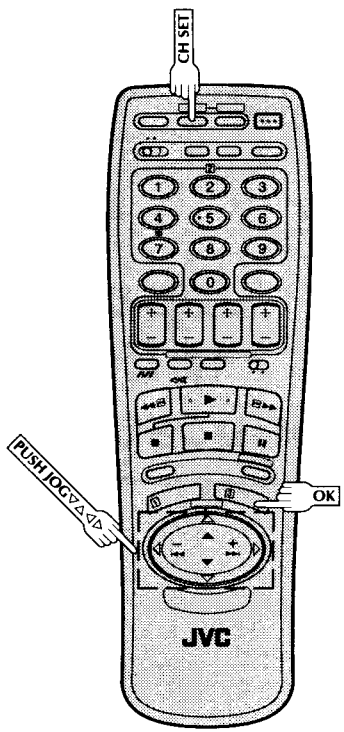
Press **PUSH JOG△▽** to place the pointer next to your country's name, then press **OK** to initiate Auto Channel Set.

- As the recorder searches for receivable stations, it displays broadcasts from the stations for a few seconds as it locates them.



CONTINUED ON NEXT PAGE.





6 VIEW CONFIRMATION SCREEN

The stations your recorder located appear on a Confirmation screen — channel positions (PR), channels (CH) and station names (ID– ☞ pg. 33). To view the next page of the listing, press **PUSH JOG△▽◁▷**. The blueback screen and the program currently being broadcast by the highlighted station appear alternately for 5 seconds each.

PR	CH	ID	PR	CH	ID
01	25	ARD	08	C26	E-SP
02	C08	SKY1	09	55	WEST
03	10	ZDF	10	C24	SAT1
04	C65	RAI1	11	C23	OSF
05	C31	BBC1	12	C25	ESPN
06	C32	BBB2	13	C37	CNN
07	C33	3SAT	14	C35	

[▲▼◀▶]
→ OK : EDIT
→ [CANCEL] : DELETE
[CH SET] : EXIT

C: Cable

- The stations located in the selected country appear at the top of the list.

7 RETURN TO NORMAL SCREEN

Press **CH SET**.

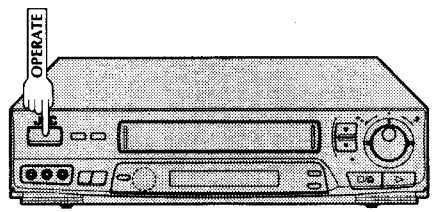
- Depending on the reception conditions, the stations may not be stored in order, and the station names may not be stored correctly.
- Using the Confirmation screen, you can skip or add channel positions, enter station names and perform other operations. Refer to page 31 for the procedures.
- For information on scrambled broadcasts, refer to page 31.

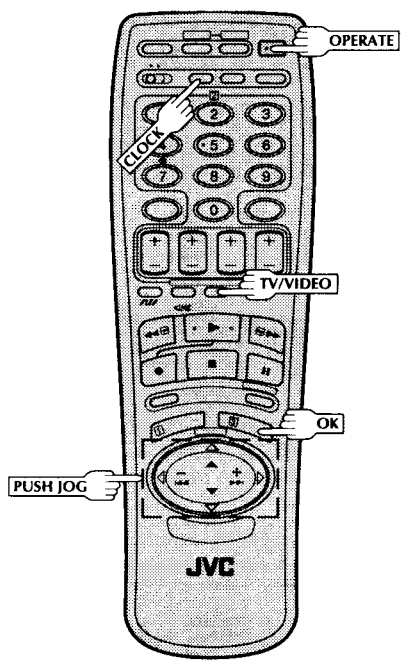
NOTES:

- *Fine tuning is performed automatically when you select "AUTO CH SET". If you want to perform it manually, refer to page 32.*
- *To set the tuner manually, refer to "Storing Channels Manually" (☞ pg. 31).*

Clock Set

Turn on the TV and select the VIDEO channel (or AV mode).





If you performed Auto Channel Set (☞ pg. 5), the recorder's built-in clock is also set automatically. The Auto and Manual clock setting procedures are necessary when . . .

- a power outage of more than 60 minutes occurs.
- the tuner has been set manually.
- the user desires to set the clock slightly ahead of the actual time.
- the clock was not set even after Auto Tuner Set was performed.

Whether you perform Auto or Manual clock setting, you can use the convenient Just Clock function.

Just Clock
The Just Clock function provides accurate time keeping through automatic adjustments at regular intervals, by reading data from a PDC signal.
The Just Clock option appears in the Clock Set and Auto Clock screens, and can be set "ON" or "OFF" (the default setting is "ON"). Press **OK** until the Just Clock setting begins blinking, then press **PUSH JOG△▽** to change the setting.

IMPORTANT: If you turn off Just Clock off, the accuracy of your recorder's built-in clock may be reduced, which could adversely effect timer recording.

Both Auto and Manual clock setting procedures begin from step **3**.

Preparation

1 TURN THE RECORDER ON

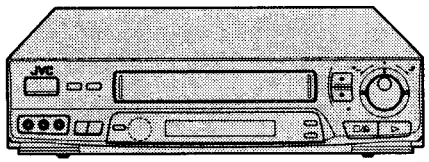
Press **OPERATE**.

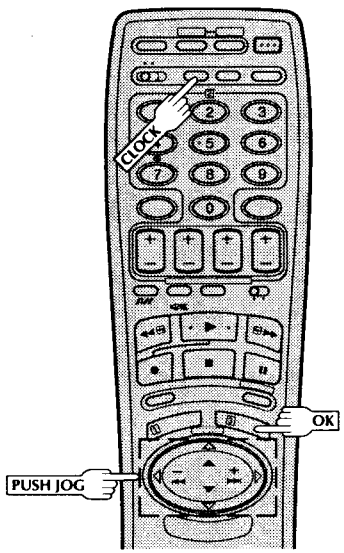
2 ACCESS CLOCK SET SCREEN

Press **CLOCK** on the remote control. The Clock Set screen appears.

CLOCK SET
TIME 0:00 DATE 01 . 01 YEAR 00
JUST CLOCK: ON
TV PR. 1
[▶]: AUTO CLOCK
[▲▼] → OK
[CLOCK] : EXIT

CONTINUED ON NEXT PAGE.

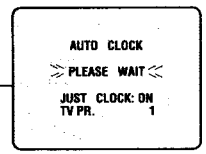




Auto Clock Set

3 SET CLOCK AUTOMATICALLY

At the Clock Set screen, press **PUSH JOG▷**. The Auto Clock screen appears and clock setting begins.



- If "TV PR." isn't set to the channel position on which Auto Clock data is received, "ERROR" appears, and then the screen from step **2** reappears. To set "TV PR.", press **OK** to place the pointer next to it, then cycle through the numbers by pressing **PUSH JOG△▽** until the number representing the channel position in which the station transmitting clock setting data is stored appears.

4 RETURN TO NORMAL SCREEN

Once clock setting is completed, press **CLOCK** to return to the normal screen.

Manual Clock Set

3 SET DATE AND TIME

Press **PUSH JOG△▽** to set the hour, then press **OK**. The "minutes" display begins blinking. Repeat the procedure to set the minutes, day, month and year.

4 SET JUST CLOCK

The default setting is "ON". Set as desired by pressing **PUSH JOG△▽**, then press **OK**.

- If you set to "OFF", you can disregard the next step as you won't be able to receive regular clock adjustments.

5 SET CLOCK DATA SOURCE CHANNEL POSITION

The recorder is preset to receive clock setting and adjustment data from channel position 1. Press **PUSH JOG△▽** to set the channel position to the number representing the station transmitting clock setting data, then press **OK**.

6 START CLOCK OPERATION

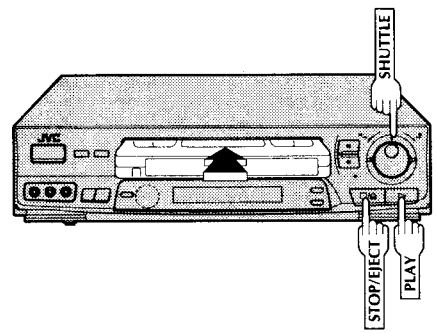
Press **CLOCK**.

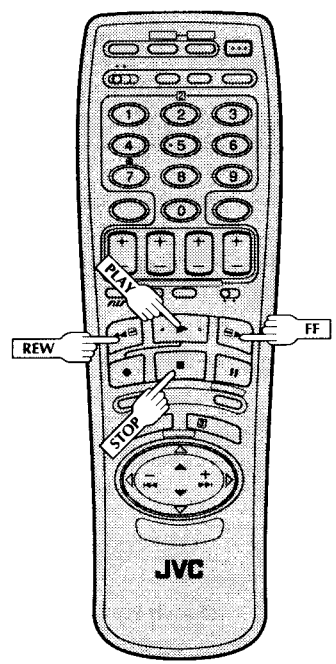
NOTES:

- *Auto Clock and Just Clock require a PDC signal, and will not operate with a VPS signal.*
- *Just Clock (when set to "ON") enables adjustment of the recorder's built-in clock every hour on the hour, except for 11 o'clock in the evening and midnight.*
- *Just Clock is not effective when . . .*
  - *the recorder's power is on (unless the recorder is tuned to the same channel position selected in the Clock Set screen).*
  - *the recorder is in the Timer mode.*
  - *a difference of more than 3 minutes exists between the built-in clock's time and the actual time.*
- *If Just Clock is set to "ON", the recorder's clock is automatically adjusted at the start/end of Summer Time.*
- *Auto clock setting and Just Clock may not function properly depending on the reception condition.*
- *During Manual clock setting, if the day and month data are invalid (such as 31st April), the month digits are cleared automatically and the day digits begin blinking. Input the correct data.*
- *If, in step **3** of the Manual clock setting procedure, the year digits are automatically cleared and the day digits begin blinking, it is possible that you have input 29th February for a* non-leap year. Input the correct data.

Basic Playback

Turn on the TV and select the VIDEO channel (or AV mode).





The easiest, most basic operation possible with your video recorder is tape playback. Already-recorded signals on a video tape are read by your video recorder and displayed on your TV just like a TV programme.

1 LOAD A CASSETTE

Make sure the window side is up, the rear label side is facing you and the arrow on the front of the cassette is point toward the recorder. Don't apply too much pressure when inserting.

- The recorder power comes on automatically and the counter is reset to 0:00:00.
- If the record safety tab has been removed, playback begins automatically.

2 FIND PROGRAMME START POINT

If the tape is advanced past the start point, press **REW** or turn the **SHUTTLE** ring to the left and release it.
To go forward, press **FF** or turn the **SHUTTLE** ring to the right and release it.

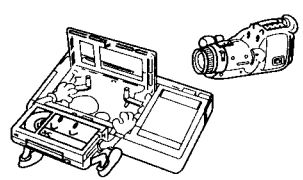
3 START PLAYBACK

Press **PLAY**. "BEST" appears blinking in the recorder's display panel for 5 seconds. (☞ pg. 15)

4 STOP PLAYBACK

Press **STOP** on the remote or **STOP/EJECT** on the recorder's front panel. Then press **STOP/EJECT** to remove the cassette.

Usable cassettes



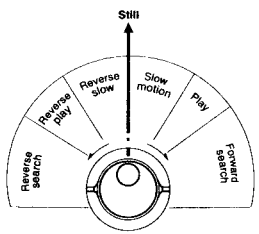
- Compact VHS camcorder recordings can be played on this video recorder. Simply place the recorded cassette into a VHS Cassette Adapter and it can be used just like any full-sized VHS cassette.
- This video recorder can record on regular VHS and Super VHS cassettes. However, it will record and play back regular VHS signals only. It is not possible to play back a recorded Super VHS tape.

Playback Features

Take advantage of special functions possible with the recorder's controls or the remote control.

NOTE:

*Refer to the **SHUTTLE** ring illustration below as you read the following procedures.*



Still Picture/Frame-By-Frame Playback

1 PAUSE DURING PLAYBACK

Press **PAUSE.** If there is vertical jitter, use the **TV PROG.** buttons to correct the picture.

2 ACTIVATE FRAME-BY-FRAME PLAYBACK

Turn the **JOG** dial to the right for forward frame-by-frame playback, or to the left for reverse frame-by-frame playback.

OR

Press **PAUSE**.

OR

Press **PUSH JOG** ◁ or ▷.

To resume normal playback, press **PLAY**.

Slow Motion

1 ACTIVATE SLOW-MOTION PLAYBACK

During playback or still, turn the **SHUTTLE** ring to the right for forward slow motion, or to the left for reverse slow motion (refer to the illustration to the left).

OR

During still picture, press and hold **PAUSE** for 2 seconds, then release. Press and release again to return to still picture.

OR

During still picture, press and hold **PUSH JOG** ◁ or ▷. Release to return to still picture.

To resume normal playback, press **PLAY**.

Variable-Speed Search

1 ACTIVATE VARIABLE-SPEED SEARCH

During playback or still, turn the **SHUTTLE** ring to the right for forward variable-speed search, or to the left for reverse variable-speed search (refer to the illustration to the left).

OR

During playback, press **PUSH JOG** ◁ or ▷.

- The more times you press, the faster the playback picture moves.
- To decrease speed, press the button for the opposite direction.

To resume normal playback, press **PLAY**.

High-Speed (Turbo) Search

1 ACTIVATE HIGH-SPEED SEARCH

During playback or still, turn the **SHUTTLE** ring all the way to the right for forward high-speed search, or to the left for reverse high-speed search.

- For forward search with a visible picture, turn the **SHUTTLE** ring all the way to the right and release it within 1 second.
- For reverse search with a visible picture, turn the **SHUTTLE** ring all the way to the left and release it within 1 second.

OR

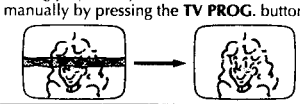
Press **FF** for forward high-speed search, or **REW** for reverse high-speed search.

- For short searches, press and hold **FF** or **REW** for over 2 seconds. When released, normal playback resumes.

To resume normal playback, press **PLAY**.

Manual Tracking

Your video recorder is equipped with automatic tracking control. During playback, you can override this and adjust the tracking manually by pressing the **TV PROG.** buttons.



1 OVERRIDE AUTOMATIC TRACKING

Press **SP/LP (▮▮▮)** on the remote to engage manual tracking.

2 ADJUST TRACKING MANUALLY

Press **TV PROG.** + or – to adjust tracking.

3 RETURN TO AUTOMATIC TRACKING

Press **SP/LP (▮▮▮)** on the remote to re-engage automatic tracking.

NOTE:

When a new tape is inserted, the recorder enters the automatic tracking mode automatically.

Instant ReView

Simply by pressing a single button, the recorder power comes on, rewinds, and begins playback of the last timer-recorded programme. If you have several programmes recorded, you can easily access any of them.

NOTE:

Before starting, make sure that the recorder is off and that the Timer mode is disengaged.

1 ACTIVATE INSTANT REVIEW

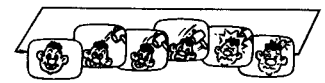
Press **REVIEW**. The recorder power comes on and the recorder searches for the index code indicating the start of the last timer-recorded programme. Once it's found, playback begins automatically.
The front display panel tells you how many programmes have been recorded. If you have, for example, 3 programmes, "REV 3" appears and blinks. To watch the first of the 3 programmes, press **REVIEW** three times. The recorder searches and begins playback automatically. You can access a programme as far as 9 index codes away from the current tape position.

NOTE:

Instant ReView is not possible while the recorder is in the Timer mode.

Repeat Playback

Your video recorder can automatically play back the whole tape 20 times repeatedly.



1 START PLAYBACK

Press **PLAY**.

2 ACTIVATE REPEAT PLAYBACK

Press **PLAY** and hold for over 5 seconds, then release.

- The Play indicator (▷) on the display panel blinks slowly.
- The tape plays 20 times automatically, and then stops.

3 STOP PLAYBACK

Press **STOP** at any time to stop playback.

NOTE:

*Pressing **PLAY**, **REW**, **FF** or **PAUSE** also stops Repeat Playback.*

NTSC Playback

Your video recorder is equipped with NTSC circuitry that can play back NTSC tapes.

1 LOAD A CASSETTE

Insert a cassette recorded in NTSC.

2 START PLAYBACK

Press **PLAY**. "NT" appears on the display panel.

- Some TVs shrink the picture vertically and place black bars at the top and bottom of the screen. This is not a malfunction on the part of either the video recorder or the TV.
- The picture may roll up and down. This can be corrected using the V-HOLD control found on some TVs. (This cannot be corrected if the TV does not have a V-HOLD control.)
- The counter and tape remaining time readings will be incorrect.
- During search, still, or frame-by-frame playback, the picture will be distorted, and there may be a loss of colour.
- Depending on the type of TV, the top and bottom portions of superimposed displays may be cut off during NTSC playback.

Scene Finder

This function helps you check contents of unlabeled recorded tapes at the touch of a single button.

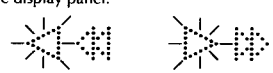
NOTE:

Scene Finder cannot be used when the recorder is in the Record mode.

1 ACTIVATE SCENE FINDER

Press **SCENE FINDER**. The recorder starts forward high-speed search for 5 seconds and then fast-forwards 10 minutes on the counter. This cycle is repeated until the end of the tape is reached.

- To start Scene Finder in the reverse direction, press **SCENE FINDER** and then turn the **SHUTTLE** ring to the left (or press the remote's **REW** button) within 2 seconds. This cycle is repeated until the beginning of the tape.
- During Scene Finder, the following indications appear on the display panel:



2 STOP SCENE FINDER

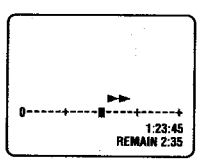
Press **STOP**.

NOTES:

- *During Scene Finder high-speed search, you can also hear the tape sound. During fast forward or rewind, you hear the current TV sound instead.*
- *Scene Finder does not function during Index Search.*

Tape Position Indicator

The tape position indicator appears on screen when, from the Stop mode, you press **FF**, **REW** or perform an Index Search. The position of "■" in relation to "0" (beginning) or "+" (end) shows you where you are on the tape.



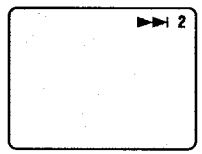
"O.S.D." (☞ pg. 17) must be set to "ON", or the indicator will not appear.

NOTE:

Depending on the type of tape used, there may be times when the indication is not correct.

Index Search

Your recorder automatically marks index codes at the beginning of each recording. This function gives you quick access to any one of 9 index codes in either direction.



NOTE:

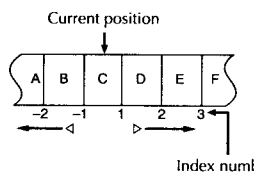
Before starting, make sure the recorder is in the Stop mode.

1 ACTIVATE INDEX SEARCH

Press **PUSH JOG** ◁ or ▷ (I◀◀ or ▶▶I). "I◀◀ 1" or "▶▶I 1" is displayed on screen and search begins in the corresponding direction.

- To access index codes 2 through 9, press **PUSH JOG** ◁ or ▷ repeatedly until the correct index number is displayed.

Ex.: To locate the beginning of B from the current position, press **PUSH JOG** ◁ twice.
To locate the beginning of D from the current position, press **PUSH JOG** ▷ once.



- When the specified index code is located, playback begins automatically.

Next Function Memory

You can set your recorder's power to go off automatically after the tape is fully rewound. Before starting, make sure the recorder is in the Stop mode.
For Automatic Power Off After Tape Rewind . . .
. . . press **REW**, then press **OPERATE** within 2 seconds.

NOTE:

*If you want the power to be turned off automatically when the counter reads "0:00:00" (instead of at the beginning of the tape), press **C.MEMORY** so that the "M" mark appears before pressing **REW**.*

Information On Colour System

You can also record SECAM signals, or play back a MESECAM tape on this recorder. When a MESECAM tape is played back, "MES" appears on the display panel. MESECAM is the designation for tapes with SECAM signals that have been recorded on a MESECAM-compatible PAL video recorder.

Tape Remaining Time

1 DISPLAY REMAINING TIME

Press **DISPLAY** until the time remaining on the tape appears.

- By pressing the **DISPLAY** button, you can change the display to show the counter reading, tape remaining time, or clock time.

NOTE:

Depending on the type of tape used, there may be times when the tape remaining time reading may not appear right away, or is not correct. "- - : - -" may sometimes appear, or the display may blink on occasion.

Counter Memory

Returns to the counter reading of "0:00:00" to conveniently find a specific place on the tape automatically.

1 SET COUNTER MEMORY

Press **C. RESET** during playback at a point you wish to locate later. The counter reads "0:00:00". Then press **C. MEMORY**, and "M" appears in front of the counter digits.

2 ACTIVATE COUNTER MEMORY

When you wish to return to the designated point, press **STOP** and then **REW** or **FF**.

- The tape rewinds or fast-forwards and stops at about 0:00:00 automatically.
- To cancel Counter Memory, press **C.MEMORY** again.

Remote A/B Code Switching

The remote control is capable of controlling two JVC video recorders independently; one set to respond to the remote control's A code control signals and another set to respond to B code control signals. The remote control is preset to send A code signals because your video recorder is initially set to respond to A code signals. You can easily modify your video recorder to respond to B code signals.

1 REMOVE POWER SUPPLY

Unplug the mains power cord from the mains outlet.

2 SET A/B CODE SWITCH

Set to B.

3 RE-SUPPLY POWER

Plug the mains power cord back into the mains outlet.

4 TURN THE RECORDER ON

Press **OPERATE** on the remote control. The recorder will now only respond to B code signals.

NOTE:

Some TV sets may malfunction in response to the B mode. If this happens, switch back to the A mode.

Soundtrack Selection

Your video recorder is capable of recording three soundtracks (HI-FI L, HI-FI R and NORM) and will play back the one you select.

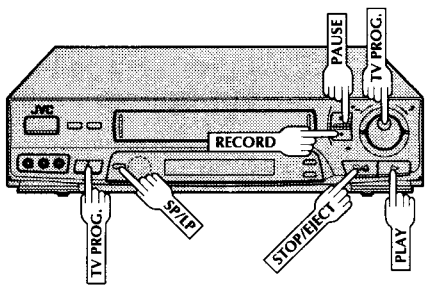
During Playback
Pressing **AUDIO MONITOR** on the remote control changes the soundtrack being played back as follows:

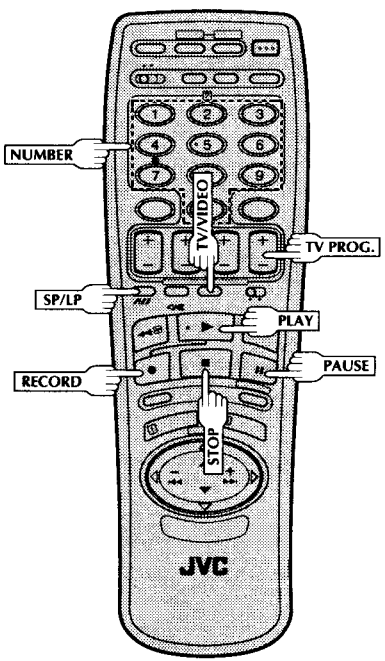
TRACK		USE
Recorder's Front Panel	On-Screen Display	
L + R	HI FI L R	For Hi-Fi stereo tapes
L	HI FI L	For main audio of Bilingual tapes
R	HI FI R	For sub audio of Bilingual tapes
NORM	NORM	For audio-dubbed tapes
L + R + NORM	HI FI NORM	For audio-dubbed tapes

NOTES:

- *"L + R" should normally be selected. In this mode, Hi-Fi stereo tapes are played back in stereo, and the NORM track is played back automatically for tapes with only normal audio.*
- *For instructions on recording stereo and bilingual programmes, refer to page 18.*
- *"O.S.D." must be set to "ON" or the on-screen displays will not appear (☞ pg. 17).*

Basic Recording





TV signals being received by the recorder's built-in tuner can be recorded onto a video tape. You can "capture" a TV programme using your video recorder.

1 LOAD A CASSETTE

Insert a cassette with the record safety tab intact.

- The counter is reset to 0:00:00 and the recorder power comes on automatically.
- If your recorder is connected to the TV via AV connection, press **TV/VIDEO** to select the VIDEO mode.

2 CHOOSE A PROGRAMME

Press **TV PROG. +/–** or the **NUMBER** keys to select the channel you wish to record. The name of the station appears in the recorder's display panel for 5 seconds, followed by the channel position number. (Only stations that appear in the Confirmation screen will be displayed.)

- The **TV PROG.** dial can also be used to select a channel.

3 SET TAPE SPEED

Press **SP/LP**. Check the SP/LP indicator on the recorder display panel to confirm the selected tape speed.

4 START RECORDING

Press and hold **RECORD** and **PLAY** on the remote control, or press **RECORD** on the recorder.

B.E.S.T. takes place at the beginning of both the first SP and the first LP recording after inserting the cassette (☞ pg. 15).

5 PAUSE/RESUME RECORDING

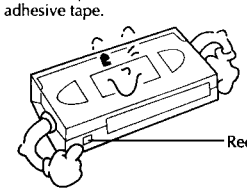
Press **PAUSE**. Press **PLAY** to resume recording.

6 STOP RECORDING

Press **STOP** on the remote control or **STOP/EJECT** on the recorder. Then press **STOP/EJECT** to remove the cassette.

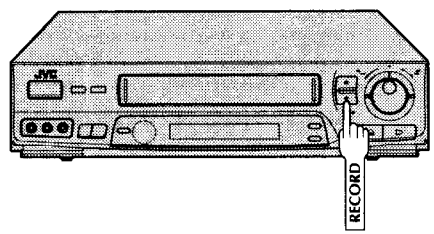
Accidental erasure prevention

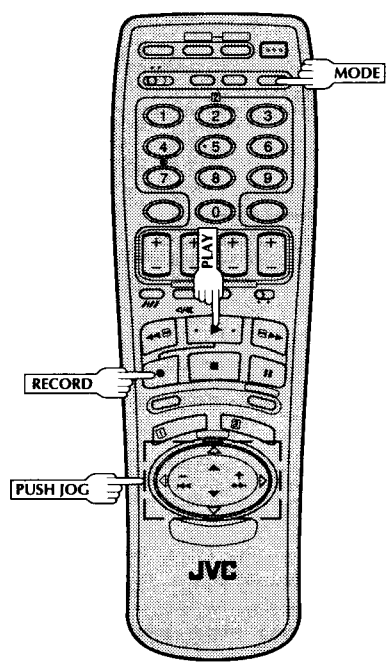
- To prevent accidental recording on a recorded cassette, remove its safety tab. To record on it later, cover the hole with adhesive tape.



B.E.S.T. Picture System

Turn on the TV and select the VIDEO channel (or AV mode).





The B.E.S.T. (Biconditional Equalised Signal Tracking) system checks the condition of the tape in use during recording and playback, and compensates to provide the highest-possible recording and playback pictures. The default setting for both recording and playback is "ON".

Recording

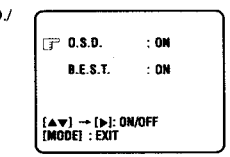
1 LOAD A CASSETTE

Insert a cassette with the record safety tab intact.

- The recorder power comes on automatically.

2 ACCESS MODE SELECT SCREEN

Press **MODE**. The O.S.D./ B.E.S.T. screen appears.



3 CONFIRM B.E.S.T. STATUS

The default setting is "ON". If this is the case, go to step **4**. If not, press **PUSH JOG▽** to place the pointer next to "B.E.S.T.", then press **PUSH JOG▷** to set to "ON".

4 CLOSE MODE SELECT SCREEN

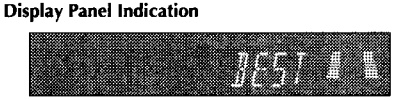
Press **MODE**.

5 START RECORDING

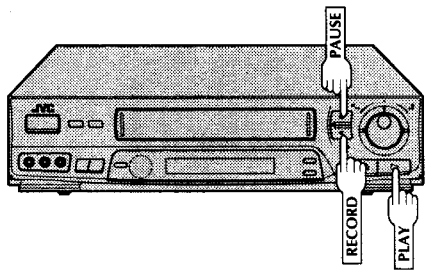
Press and hold **RECORD** and **PLAY** on the remote, or press **RECORD** on the recorder.

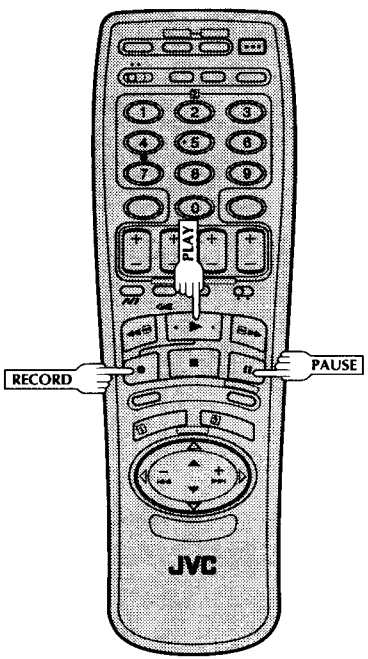
- The recorder spends approximately 7 seconds assessing the condition of the tape, then begins recording.
- When the "BEST" indicator begins blinking, that means adjustment is complete.

Display Panel Indication



As the tape check progresses, the "– –" marks on the display panel increase upward. Once the "BEST" indicator starts blinking, the check is complete.





NOTES:

- *The B.E.S.T. system works for both SP and LP modes only after a tape has been inserted and the Record mode is first initiated. It does not work during recording.*
- *In the case of timer recording, the B.E.S.T. system works before recording is initiated.*
- *Once the cassette is ejected, the B.E.S.T. data is cancelled. The next time the cassette is used for recording, B.E.S.T. is re-performed.*

ATTENTION:

Since the B.E.S.T. system works before recording actually starts, there is a delay of approximately 7 seconds after ***RECORD*** *and* ***PLAY*** *on the remote are pressed, or* ***RECORD*** *on the recorder is pressed. To make sure you record the desired scene or programme in its entirety, first perform the following steps:*

1) Press and hold ***PAUSE*** *and* ***RECORD*** *to engage the RECORD PAUSE mode.*
- *The recorder then automatically checks the condition of the tape and, after approximately 7 seconds, re-enters RECORD PAUSE.*

2) Press ***PLAY*** *to start recording.*
- *If you want to bypass the B.E.S.T. system and begin recording immediately, set "B.E.S.T." to "OFF" in step* ***3*** *on page 15.*

Playback

The recorder assesses the quality of the tape once you initiate playback.

When watching a tape recorded with "B.E.S.T." set to "ON", it is recommended that you leave B.E.S.T. on during playback as well.

1 START PLAYBACK

Press **PLAY**.

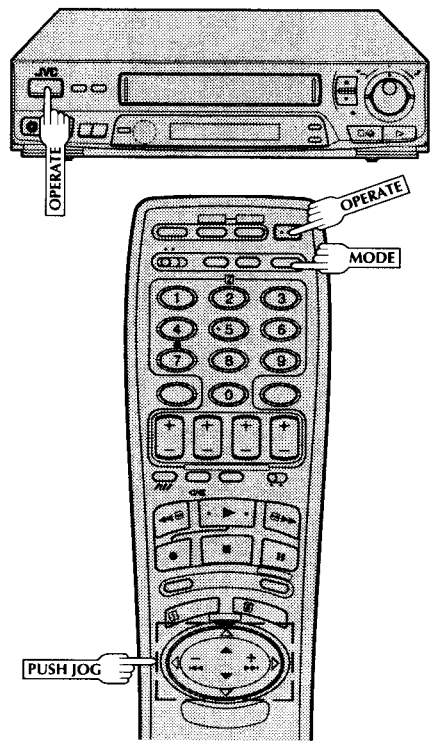
- The recorder adjusts the playback picture quality based on the quality of the tape in use.
- B.E.S.T. is active during Auto Tracking. "BEST" appears blinking on the recorder's display panel.

NOTES:

- *When watching a rental tape, or one recorded on another video recorder, set B.E.S.T. to your preference by performing steps* ***2*** *through* ***4*** *on page 15.*
- *"BEST" only appears at the beginning of automatic tracking. Even though it doesn't appear after that, the B.E.S.T. function is operative.*

On-Screen Displays

Turn on the TV and select the VIDEO channel (or AV mode).



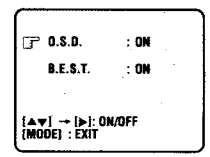
You can choose whether or not to have various operational indicators appear on screen, by setting this function ON or OFF. Messages appear in the language you selected during Auto Channel Set (☞ pg. 5).

1 TURN ON THE RECORDER

Press **OPERATE**.

2 ACCESS MODE SELECT SCREEN

Press **MODE**. The O.S.D./ B.E.S.T. screen appears.



3 SELECT MODE

The pointer should already be next to "O.S.D.". If not, press **PUSH JOG**△▽ to place it there.

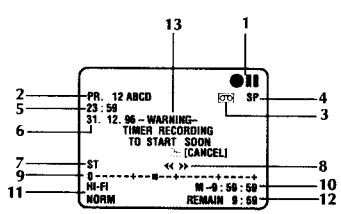
4 ENABLE/DISABLE ON-SCREEN DISPLAY

The default setting is "ON", so if you want on-screen displays, leave the setting as is and go to step **5**. If you don't want the displays to appear, press **PUSH JOG** ▷ to set "O.S.D." to "OFF".

5 CLOSE MODE SELECT SCREEN

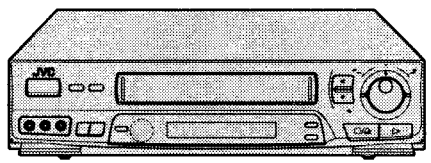
Press **MODE**.

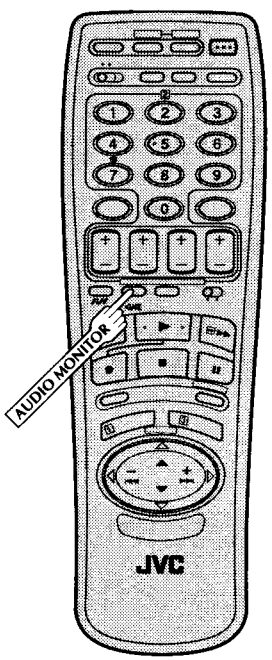
The superimposed indication on the TV screen tells you what the recorder is doing.



1– Operation mode indicators
2– Channel position number and station name/Aux. indicator (AUX1, AUX2 or F-AUX)
3– Cassette loaded mark
4– Tape speed SP/LP/EP (EP is for NTSC playback only)
5– Clock display
6– Current day/month/year
7– Type of Broadcast (NICAM appears only with J638EH.)
8– Tape direction
9– Tape position indicator (☞ pg. 12)
10– Counter display (including Counter Memory indicator)
11– Audio mode display
12– Tape remaining time indicator
13– Timer warning display

Recording Features





Receiving Stereo And Bilingual Programmes

Your recorder is equipped with a Sound-Multiplex decoder (A2) and, if you own the J638EH, a Digital stereo sound decoder (NICAM) as well, making reception of stereo and bilingual broadcasts possible.

When the channel is changed, the type of broadcast being received will be displayed on the TV screen for a few seconds.

Type of Broadcast Being Received	On-screen Display
A2 Stereo	ST
A2 Bilingual	BIL
Regular Monaural	(none)
*NICAM Stereo	ST NICAM
*NICAM Bilingual	BIL NICAM
*NICAM Monaural	NICAM

*Available with J638EH only.

- To listen to a stereo programme, press **AUDIO MONITOR** until "L" and "R" appear on the front display panel.
- To listen to a bilingual programme, press **AUDIO MONITOR** until either "L" or "R" appears on the front display panel (as required).
- To listen to the Standard (regular monaural) audio while receiving a NICAM broadcast, press **AUDIO MONITOR** until "NORM" appears on the front display panel. (J638EH only)

NOTE:

"O.S.D." must be set to "ON" or the on-screen displays will not appear (☞ pg. 17).

To Record Stereo And Bilingual Programmes (A2)

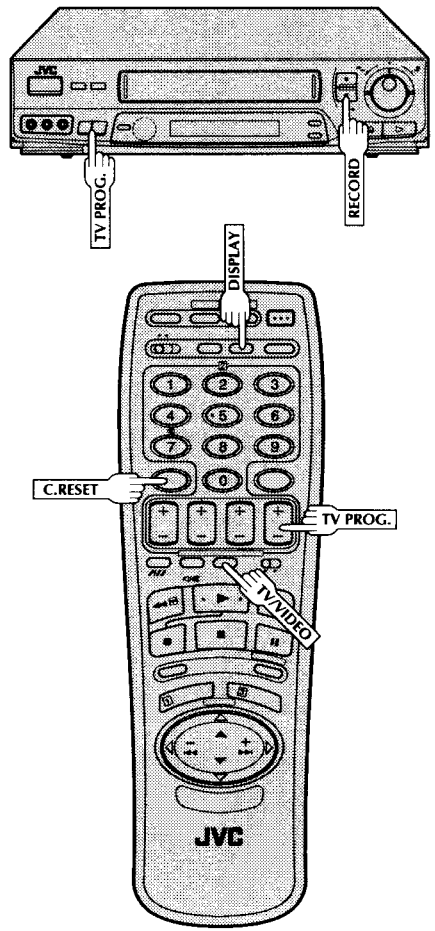
- Stereo programmes are automatically recorded in stereo on the Hi-Fi audio track (with the normal audio track recording mixed L and R channel sound).
- Bilingual programmes are automatically recorded in bilingual on the Hi-Fi audio track. The main soundtrack will be recorded on the normal audio track.

NOTES:

- *If the quality of stereo sound being received is poor, the broadcast will be received in monaural with better quality.*
- *Before playing back a programme recorded in stereo, or a bilingual programme, refer to "Soundtrack Selection" (☞ pg. 13).*

To Record NICAM Stereo And Bilingual Programmes (J638EH only)

- The NICAM audio programme will be recorded on the Hi-Fi audio track, and the Standard audio programme on the normal audio track.



Record One Programme While Watching Another

If your recorder is connected to the TV via AV connection, ... press **TV/VIDEO**. The recorder's VIDEO indicator and the TV broadcast being recorded disappear.

1 SELECT CHANNEL TO WATCH

Once recording is in progress, all you need to do is to set the channel controls on the TV for the station you wish to view.

- The programme selected with the TV's channel controls appears on the TV screen while the one selected with the **TV PROG.** button is recorded on the tape.
- If a decoder is connected to the recorder (☞ pg. 4), you can select a scrambled channel as well with the TV channel controls.

Elapsed Recording Time Indication

You can check the exact time of a recording.

1 SET COUNTER DISPLAY

Press **DISPLAY** until a counter reading appears on the dispay panel.

2 RESET COUNTER

Press **C. RESET** before starting recording or playback.

- The counter is reset to "0:00:00" and shows the exact elapsed time as the tape runs.

Instant Timer Recording (ITR)

This easy method lets you record for from 30 minutes to 6 hours (selectable in 30-min. increments), and shuts the recorder off after recording is finished.

1 START RECORDING

Press **RECORD** on the recorder.

2 ENGAGE ITR MODE

Press **RECORD** again. ITR blinks and 0:30 appears on the front display panel.

3 SET RECORDING DURATION

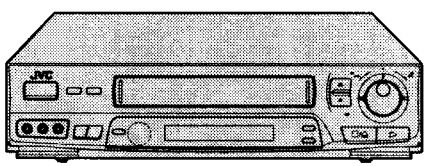
If you want to record for more than 30 minutes, press **RECORD** to extend the time. Each press extends recording time by 30 minutes.

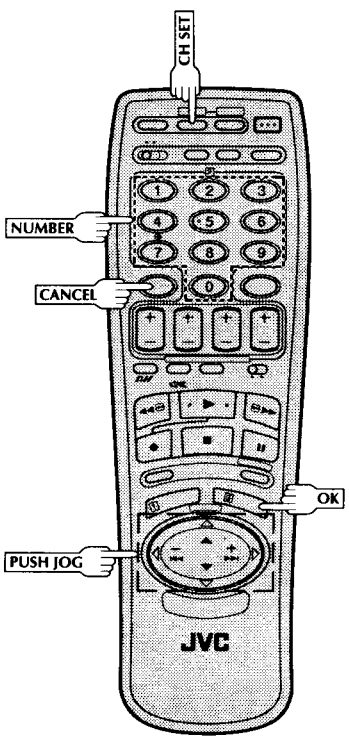
NOTE:

*You can only perform ITR using the **RECORD** button on the recorder's front panel.*

Information On ShowView

Turn on the TV and select the VIDEO channel (or AV mode).





With ShowView, timer programming is greatly simplified because each TV programme has a corresponding code number which your recorder is able to recognise.

NOTE:

"Guide Prog. Number" (GUIDE PROG) refers to the assigned TV station numbers, according to broadcast area, for ShowView timer recording.

IMPORTANT

Perform the following procedure after the channel setting steps on pages 5 and 31 – 32, and after the Clock Set procedure on page 7.
After setting the Guide Prog. Numbers, the station names and channel positions may be incorrect if you stored or skipped channels. In this case, re-perform Guide Prog. Number setting.

Guide Prog. Number Set

1 MAKE LIST OF STORED STATION NAMES AND CHANNEL POSITIONS

(Ex.)

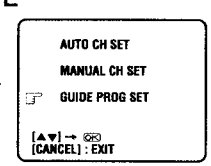
Channel position	Station name
1	ARD
2	ZDF
3	WDR

2 ACCESS CH. SET MODE MENU SCREEN

Press and hold **CH SET** for over 2 seconds. The Language screen appears. Press **OK** to access the Ch. Set Mode Menu screen.

3 SELECT MODE

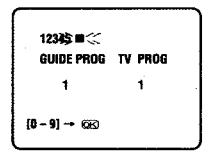
Press **PUSH JOG△▽** to place the pointer next to "GUIDE PROG SET", then press **OK**. The Guide Prog. Set screen appears.



CONTINUED ON NEXT PAGE.

4 ENTER SHOWVIEW NUMBER

Press **OK**, and a cursor appears above "GUIDE PROG". Then, using the **NUMBER** keys, input the ShowView number (found in most TV listings) of a program scheduled to be broadcast on each station on the list from step **1**, starting at the top. If you enter the wrong number, press **CANCEL** and input the correct number.



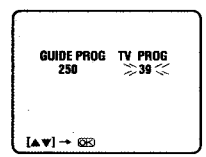
When entering a ShowView number for ARD

5 ENTER CHANNEL POSITION NUMBER

Press **OK** and the display under "TV PROG" begins blinking.

If the blinking number under "TV PROG" agrees with the channel position . . .
. . . press **OK**.

If the numbers do not agree . . .
. . . input the channel position using **PUSH JOG△▽** or the **NUMBER** keys, then press **OK**.



- If you input the ShowView number of a program that has already aired, "ERROR" appears on screen for a few seconds. Input the correct ShowView number.
- Repeat steps **4** and **5** as necessary.

6 CLOSE MENU

Press **CH SET** and selection is complete.

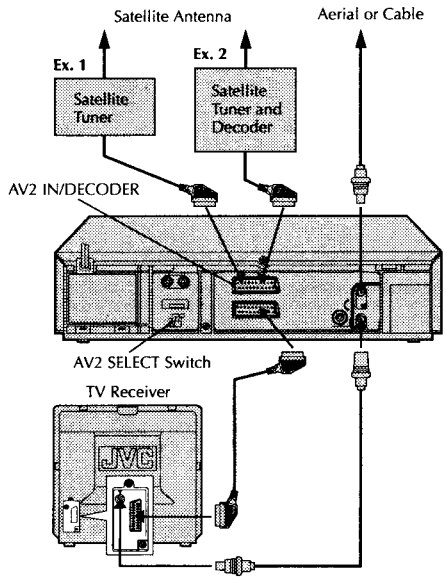
If you already know the Guide Prog. number for a station . . .
1– After step **3**, press **PUSH JOG▷**.
- The GUIDE PROG number begins blinking.

2– Enter the Guide Prog. number using the **NUMBER** keys or **PUSH JOG△▽**, then press **PUSH JOG▷**.
- The TV PROG number begins blinking.

3– Enter the channel position using the **NUMBER** keys or **PUSH JOG△▽**, then press **PUSH JOG◁**.
- Repeat **2** and **3** as necessary.

4– Press **CH SET**.

When Using A Satellite Tuner



Preparation
1– Connect the satellite tuner to the AV2 IN/DECODER connector on the rear of your recorder.
2– Set the **AV2 SELECT** switch to "AV2".

To Record Satellite Broadcasts . . .
1– Select the appropriate channel on the satellite tuner.
2– Press **NUMBER** key "0" to set your recorder's input mode to "AUX2".
3– Start recording (☞ pg. 14, steps **3 – 6**).

To Record Satellite Broadcasts Using ShowView Timer Recording . . .
1– Perform Guide Prog. Number setting.
- In step **5** in the left column, press **NUMBER** key "0" to set "TV PROG" to "AUX2".

2– Perform ShowView Timer Recording (☞ pg. 22).

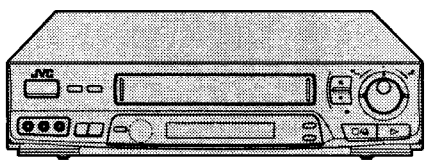
To Record Satellite Broadcasts Using Regular Timer Recording . . .
1– In step **6** on page 24, press **TV PROG. +/–** to set the channel position to "AUX2".

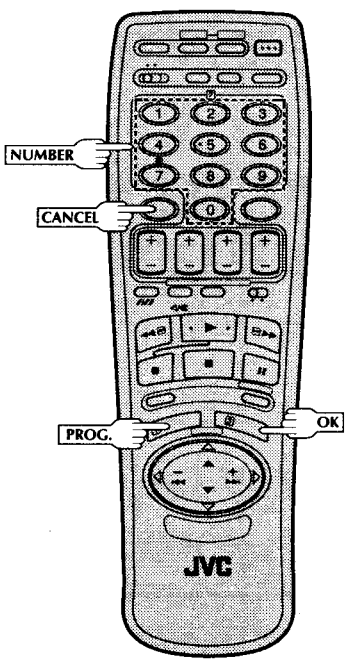
NOTES:

- *When timer-recording a satellite programme, first set the satellite tuner to the appropriate channel before the selected programme begins and then set the satellite tuner's timer. If your satellite tuner does not have a timer, leave it switched on.*
- *If your recorder's front panel VIDEO and/or AUDIO connectors are being used, they take priority and "AUX2" cannot be selected. Make sure no cables are connected to the front panel connectors when performing this procedure.*

ShowView Timer Recording

Before performing ShowView timer recording, be sure to read "Information On ShowView" (☞ pg. 20).

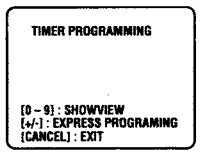




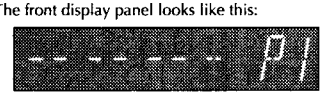
Before performing the following steps:
- Insert a cassette with the safety tab in place. The recorder will come on automatically.
- Turn on the TV and select the VIDEO channel (or AV mode).

1 ACCESS TIMER PROGRAMMING SCREEN

Press **PROG.**

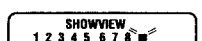


The front display panel looks like this:

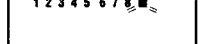


2 ENTER SHOWVIEW NUMBER

Press the **NUMBER** keys to enter the ShowView number of a programme you wish to record.



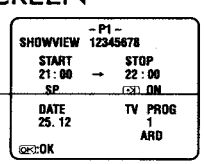
- If you make a mistake, press **CANCEL** and then input the correct number.



The ShowView number you enter appears on the front display panel:

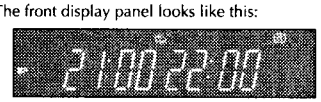
3 ACCESS SHOWVIEW PROGRAM SCREEN

Press **OK**, and the ShowView Program screen appears (if you're just starting out, "P1" appears).

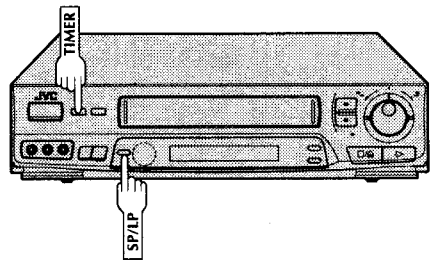


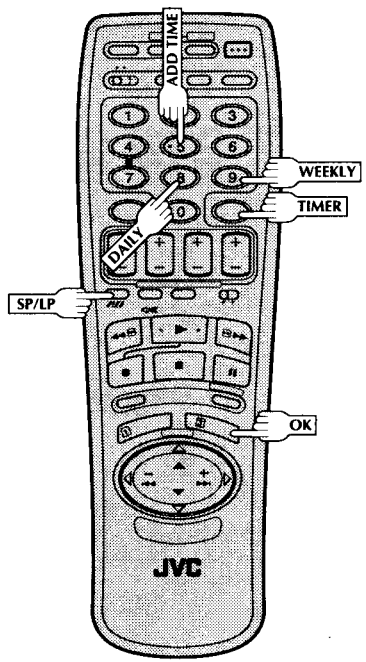
- If the number you entered is invalid, "ERROR" appears. Press **CANCEL** and input a valid ShowView number.

The front display panel looks like this:



- If you're not receiving PDC/VPS, press **NUMBER** key "7" to set ⊡ to "OFF" (☞ pg. 25).





4 SET TAPE SPEED

Press **SP/LP** to set the tape speed.

5 RETURN TO NORMAL SCREEN

Press **OK**.

- Repeat steps **1**–**5** for each additional programme.

6 ENGAGE RECORDER'S TIMER MODE

Press **TIMER**.

NOTE:

*For safety, your recorder disables all other functions while in the Timer mode. If you want to use the recorder but its Timer mode is engaged, press **TIMER** and all other functions are operable. To re-engage the timer, press **TIMER**.*

To Delay The Stop Time . . .
. . . press **ADD TIME** (**NUMBER** Key "5") after pressing **OK** in step **3**. Each time you press, the Stop time is delayed by 5 minutes (meaning that 5 minutes of recording time is added). You can easily compensate for anticipated programme schedule delays this way.

To Timer-Record Weekly Or Daily Serials . . .
. . . after pressing **OK** in step **3**, press **WEEKLY** (**NUMBER** key "9") for weekly serials or **DAILY** (**NUMBER** key "8") for daily serials (Monday–Friday).

You can programme this recorder to timer-record as many as 8 programmes. If you try to programme the recorder to record a ninth, "PROGRAM FULL" appears on screen and "FULL" appears on the front display panel. To record the extra programme, you must first cancel any unnecessary programmes (☞ pg. 25).

Regular Timer Programming

If you don't know the SowView number for the programme you wish to record, use the following procedure to set your recorder to timer-record the programme.
Remember, the clock must be set before you can programme the timer (☞ pg. 7).

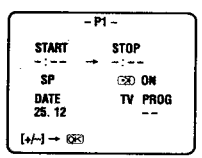
Before performing the following steps:
- Insert a cassette with the safety tab in place. The recorder will come on automatically.
- Turn on the TV and select the VIDEO channel (or AV mode).

1 ACCESS TIMER PROGRAMMING SCREEN

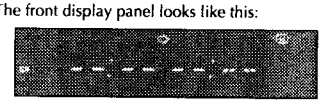
Press **PROG.**

2 ACCESS PROGRAMME SCREEN

Press **START +/–**. (If you're just starting out, "P1" appears.)

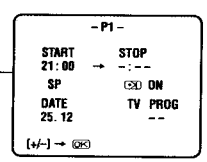


The front display panel looks like this:



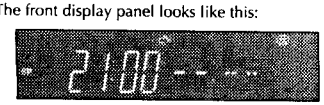
3 ENTER PROGRAMME START TIME

Press **START +/–** to enter the time you want recording to start.



- Press and hold **START +/–** to move in 30-minute increments, or press and release repeatedly to move 1 minute at a time.

The front display panel looks like this:



4 ENTER PROGRAMME STOP TIME

Press **STOP +/–** to enter the time you want recording to stop.

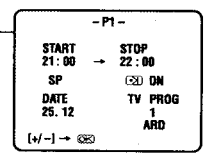
5 ENTER PROGRAMME DATE

Press **DATE +/–**. (The current date appears on screen. The date you enter appears in its place.)

6 ENTER CHANNEL POSITION

Press **TV PROG. +/–**.

- If you're not receiving PDC/VPS, press **NUMBER** key "7" to set ⊠ to "OFF" (☞ pg. 25).



7 SET TAPE SPEED

Press **SP/LP** to set the tape speed.

8 RETURN TO NORMAL SCREEN

After confirming all information is correct, press **OK** and the normal screen appears.

- Repeat steps **1**–**8** for each additional programme.

9 ENGAGE RECORDER'S TIMER MODE

Press **TIMER**.

To Timer-Record Weekly Or Daily Serials . . .
. . . anytime during steps **2** through **8**, press **WEEKLY** (**NUMBER** key "9") for weekly serials or **DAILY** (**NUMBER** key "8") for daily serials (Monday–Friday).

NOTES:

- *To timer-record from a satellite tuner connected to your recorder's AV2 IN/DECODER connector, press **TV PROG.** +/– in step **6** above to set the channel position to "AUX2".*
- *You can programme this recorder to timer-record as many as 8 programmes. If you try to programme the recorder to record a ninth, "PROGRAM FULL" appears on screen and "FULL" appears on the front display panel. To record the extra programme, you must first cancel any unnecessary programmes (☞ pg. 25).*

Check And Cancel Programmes

1 ACCESS PROGRAMME SCREEN

Press **PROG CHECK.** Each time you press the next program's information appears.

- Press **OK** and watch the front display panel as the Start and Stop times, the Date and the Channel Position appear.
- If the recorder is turned on and the TV is set to its VIDEO mode, you can check program information on screen as well.

If All Information Is Correct . . .
. . . programming is completed.

If You Wish To Revise Data . . .
. . . with the recorder's power turned on, go to step **2**.

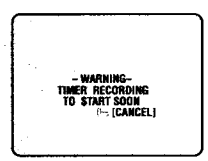
If You Wish To Cancel A Program . . .
. . . with the recorder's power turned on, press **CANCEL**. All information you input is deleted.

2 REVISE PROGRAMME INFORMATION

Input the appropriate data using the **START +/–**, **STOP +/–**, **DATE +/–** and **TV PROG. +/–** buttons on the remote control.

Timer Warning

If you have programmed your recorder to timer-record a programme or a series of programmes, a warning appears on screen to tell you that the recording is to start in 5 minutes.



NOTES:

- *The warning only appears if you're not in the Timer mode at that time.*
- *If this recorder is being used as the player for tape dubbing, the warning screen is recorded on the tape in the other video recorder.*

The warning blinks for the entire 5 minutes leading up to the start of timer recording. To clear the display, press **CANCEL**.

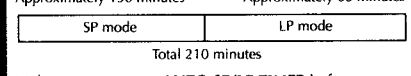
Auto SP/LP Timer

If, when recording in SP mode, there is not enough tape to record the entire programme, the recorder automatically switches to LP mode to allow complete recording.

1 ENGAGE AUTO SP/LP TIMER

Press **AUTO SP/LP TIMER** on the recorder front panel. The button lights "green".

For Example . . .
Recording a program of 210 minutes in length onto a 180-minute tape



Make sure you press **AUTO SP/LP TIMER** before performing timer programming.

NOTES:

- *The Auto SP/LP Timer feature is not available during ITR (Instant Timer Recording), and the feature will not work properly with any tapes longer than E-180 as well as some tapes of shorter lenghs.*
- *Even if, in step **1**, you press **AUTO SP/LP TIMER** and it lights "green", that doesn't mean that the recorder will automatically change from SP to LP mode during the course of the recording. Watch the tape later to confirm.*
- *If you have programmed the recorder to timer-record 2 or more programs, the second programme and those thereafter may not fit on the tape if you engage the Auto SP/LP Timer mode. In this case, make sure the mode is not engaged, then set the tape speed manually during timer programming.*
- *There may be some noise at the point on the tape where the recorder switches from SP to LP mode.*
- *If you perform timer recording with both PDC/VPS and the Auto SP/LP Timer activated, and the programme goes beyond its originally scheduled length, there may be times when the programme cannot be recorded in its entirety.*

PDC/VPS Recording

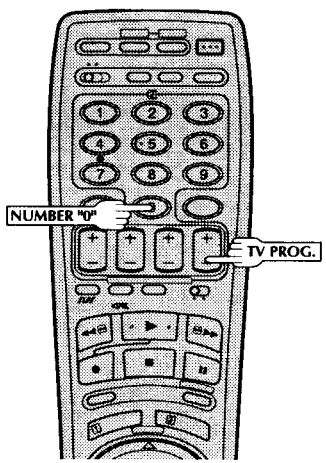
Now available from some TV stations, PDC (Programme Delivery Control) and VPS (Video Programme System) are service designed to assure safe, accurate timer recording. With this system, special code signals are transmitted together with the audio/video signals. These code signals control your video recorder and have precedence over advertised times you preset in the timer. This means that your recorder will start and stop recording when the preset TV programmes actually start and end — even if the broadcast time of a preset TV programme is changed.

To Use PDC/VPS Service . . .
The default setting for PDC/VPS is "ON". To cancel PDC/VPS, press **NUMBER** key "7" so that "OFF" is displayed on screen during ShowView or regular timer programming.

NOTES:

- *When you manually enter programmes (regular timer programming), set the start time (PDC or VPS time) exactly as advertised in the TV listing. A different time than advertised will result in no recording.*
- *PDC/VPS recording is also possible when a satellite tuner or a cable system is connected to AV2 IN on your recorder.*

Edit To Or From Another Video Recorder



You can use your video recorder as the source player or the recording deck.

1 MAKE CONNECTIONS

Connect the player's AUDIO/VIDEO OUT connector to the recorder's AUDIO/VIDEO IN connector.

When Using Your Video Recorder As The Source Player . . .

. . . connect its AV1 IN/OUT connector to the recording deck.

When Using Your Video Recorder As The Recording Deck . . .

. . . you can use the AV1 IN/OUT or AV2 IN connectors.

2 SET RECORDING DECK'S INPUT MODE

Set to AUX. With this video recorder, press **NUMBER** Key "0" or **TV PROG.** to select depending on the connector being used — "AU 1" for the AV1 IN/OUT connector, or "AU 2" for the AV2 IN connector.

- When using the AV2 IN connector, make sure the **AV2 SELECT** switch is set to "AV2".

3 START SOURCE PLAYER

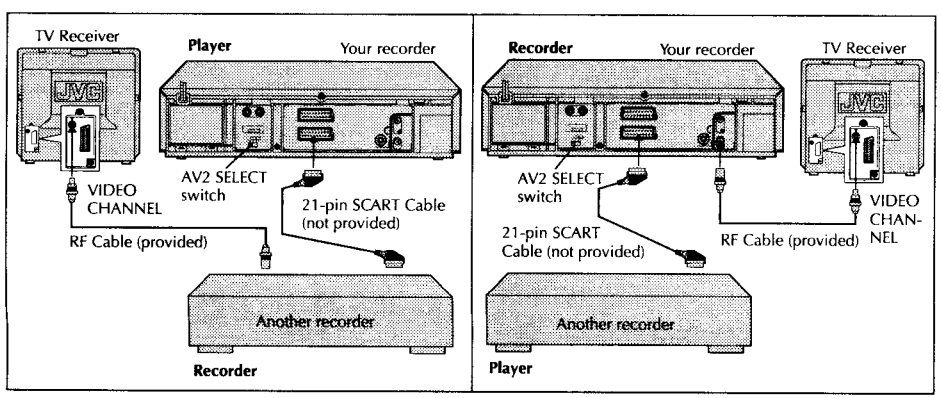
Engage its Play mode.

4 START RECORDING DECK

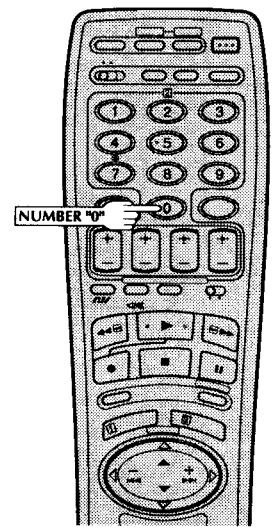
Engage its Record mode.

NOTE:

All necessary cables can be obtained from your dealer.



Edit From A Camcorder



You can use a camcorder as the source player and your video recorder as the recorder.

1 MAKE CONNECTIONS

Connect the camcorder's AUDIO/VIDEO OUT connectors to the recorder's front panel AUDIO/VIDEO input connectors.

- Use the L connector for monaural connection.
- When a Master Edit Control-equipped JVC camcorder is used, the camcorder is capable of controlling the recorder. Refer to the camcorder's instruction manual for operating procedure.

2 SET RECORDER'S INPUT MODE

Press **NUMBER** key "0". "F-AU" appears in place of a channel number.

3 START CAMCORDER

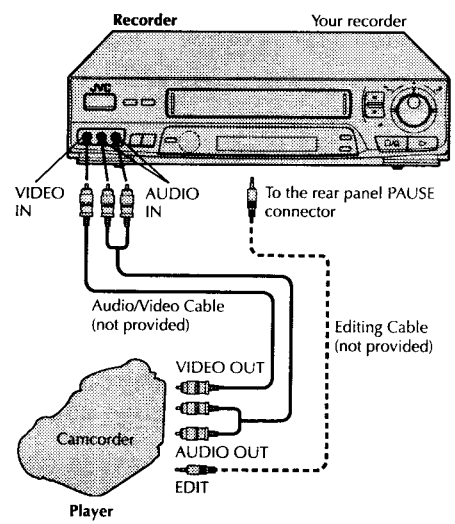
Engage its Play mode.

4 START RECORDER

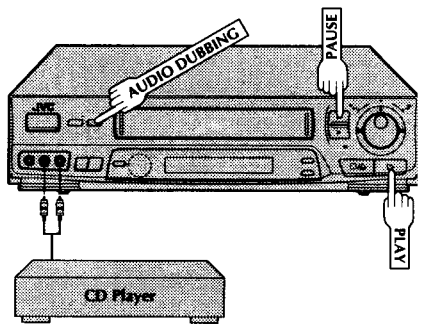
Engage its Record mode.

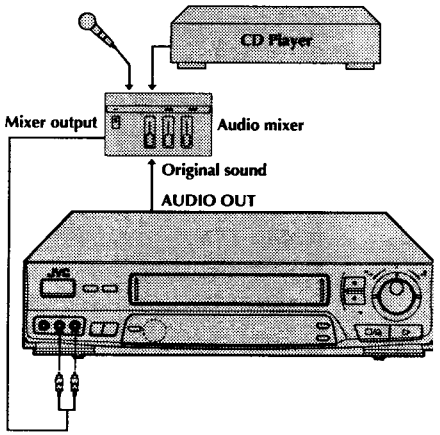
NOTE:

Connections made to the front panel AUDIO/VIDEO input connectors automatically override those made to the rear panel AUDIO/VIDEO input connectors.

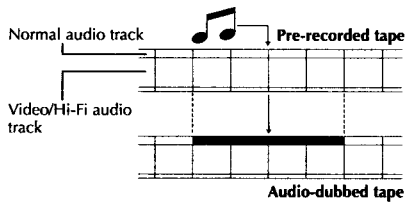


Audio Dubbing





Audio dubbing replaces the normal audio sound of a previously recorded tape with a new soundtrack.



1 MAKE CONNECTIONS

Connect an audio component to the AUDIO IN L + R connectors on the recorder's front panel.

- When connecting monaural equipment, use only the recorder's AUDIO IN L connector.

2 SET INPUT MODE

Press **NUMBER** key "0". "F-AU" appears in place of a channel number.

3 LOCATE START POINT

Press **PLAY** to start playback of the tape in your recorder, and press **PAUSE** when you find the point where you want to start dubbing.

4 ENGAGE AUDIO DUBBING

Press **AUDIO DUBBING**.

- To perform audio dubbbing with audio mixing, press **AUDIO MONITOR** to select "L + R" at this point. *Audio dubbing with audio mixing is not possible if you're using a monaural audio component, or if you don't have an audio mixer.

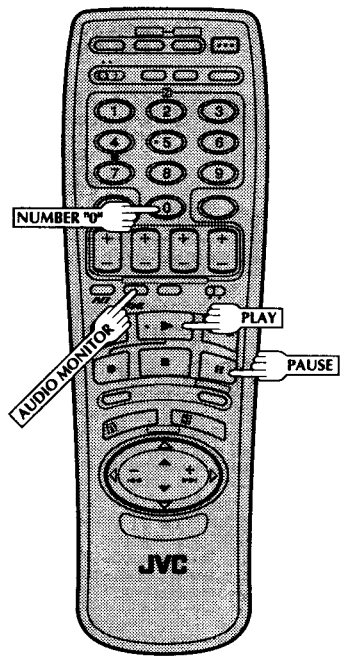
5 START DUBBING

Engage the audio component's Play mode, then press **PLAY** to start the tape in your recorder. Audio dubbing begins at this point.

- To stop dubbing temporarily, press **PAUSE**. Press **PLAY** to resume dubbing.

6 END AUDIO DUBBING

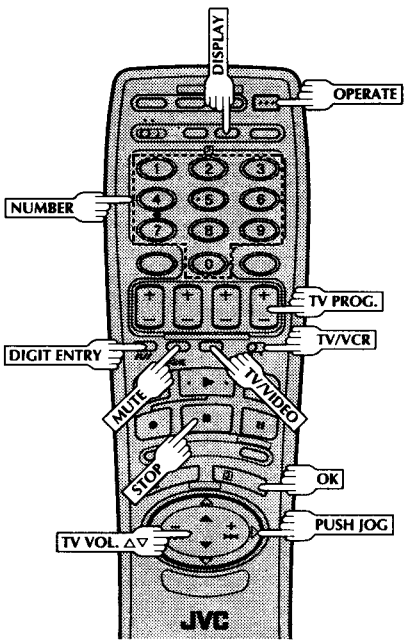
Press **STOP** to stop the tape in your recorder, and engage the audio component's Stop mode.



NOTES:

- *When monitoring the sound during Audio Dubbing, the normal soundtrack is automatically selected. If you wish to hear the mixed sound (Hi-Fi + Normal soundtracks), press **AUDIO MONITOR** to select "L+R+NORM" (☞ pg. 13).*
- *Audio dubbing stops automatically when the counter reaches "0:00:00", and the recorder enters the Play mode. Check the counter reading before dubbing.*
- *Audio dubbing is also possible using the rear panel AV1 IN/OUT or AV2 IN connector. When using these connectors, make sure to select the correct input mode in step **2**.*
- *Connections made to the recorder's front panel are given priority over those made to the rear panel connectors.*
- *Audio dubbing cannot be performed on a cassette that has had its record safety tab removed.*
- *When playing back an audio-dubbed tape, press **AUDIO MONITOR** to select the soundtrack you wish to hear (☞ pg. 13).*

Multi-Brand Remote Control



CODE	TV BRAND NAME
01	JVC
02	BRANDT, NORDMENDE, SABA, TELEAVIA, TELEFUNKEN, THOMSON
03	FERGUSON
04	PHILIPS
05	BLAUPUNKT, GRUNDIG
06	SONY
07	PANASONIC
08	GRAETZ, ITT, LUXOR, SALORA, SELECO
09	MIVAR
10	HITACHI
11	TOSHIBA
12	MITSUBISHI
13	FINLUX
14	NOKIA

Your remote control can operate the basic functions of your TV set. In addition to JVC TVs, other manufacturer's TVs can also be controlled by setting the appropriate switch on the remote control.

Before you start . . .
- Turn on the TV using its remote control.
- Set the remote control's **TV/VCR** switch to TV.

NOTE:

If your TV is a JVC, you don't have to set the code in step 1. Go to step 2.

1 SET TV BRAND CODE

Refer to the chart below. While holding down **OPERATE**, enter your TV's brand code using the **NUMBER** keys, then press **STOP**.

- You don't have to repeat this step until you replace your remote control's batteries.

2 TRY OPERATING TV

Press **OPERATE** on the remote to turn the TV off. If it goes off, try other operations.

- The **OPERATE** button, **TV/VIDEO** button, **TV PROG. +/–** button, **TV VOL.** △▽ button and **MUTE** button on the remote can all be used to operate the TV.
- To return the remote to video recorder control, set its **TV/VCR** switch to VCR.

IMPORTANT

Although the provided remote control unit is compatible with JVC televisions, as well as many other models, it may not work with your TV, or in some instances, may have limited function capability.

Control Your TV Using Additional Buttons

The **NUMBER** keys on the remote can also be used to select the TV's channel by setting the remote control to the TV mode.

1 Set the **TV/VCR** switch to TV.
2 Use the **NUMBER** keys, and the **DIGIT ENTRY** (///·) button, the **PUSH JOG** button, the **DISPLAY** button or the **OK** button to select the TV's channel.

- With televisions under Code 01, 03, 04, 06, 07, 10 or 11, the **DIGIT ENTRY** button corresponds to the 1-digit/2-digit entry switching button (often labelled – /– –) of your TV's remote control.
- With televisions under Code 01, 08 or 09, the **PUSH JOG** ◁ button corresponds to the 10 + button, and the **PUSH JOG** ▷ button corresponds to the 20 + button of your TV's remote control.
- With televisions using Code 09, the **DISPLAY** button corresponds to the 30 + button.
- With televisions using Code 06, the **OK** button corresponds to the ENTER button of your TV's remote control.

NOTE:

The way these buttons are used is determined by your TV. Use these buttons as instructed for your TV's remote control.

Storing Channels Manually

Store channels that were not stored during Auto Channel Set.

1 ACCESS CH. SET MODE MENU

Press and hold **CH SET** for more than 2 seconds. The Language screen appears. Press **OK**. The Ch. Set Mode menu appears.

2 SELECT MODE

Press **PUSH JOG**△▽ to select "MANUAL CH SET", then press **OK**. The Confirmation screen appears.

3 SELECT POSITION

Press **PUSH JOG**△▽◁▷ until an open position in which you want to store a channel begins blinking, then press **OK**. The Manual Ch. Set screen appears.

4 INPUT CHANNEL

The number "01" appears blinking beneath "CH". Press the **NUMBER** keys to input the channel number you want to store.

- For fine tuning adjustment, press **PUSH JOG** ▷ until the item beneath "CH" begins blinking, then press **PUSH JOG**△▽. While tuning, "F+" or "F–" appears.
- If necessary, to change the band between CH(regular) and CC(cable), press **PUSH JOG**◁▷ until CH or CC is blinking, then press **PUSH JOG** △▽ to select the band.
- When storing a channel that sends scrambled broadcasts, press **PUSH JOG** ▷ until "DECODER" blinks, then press **PUSH JOG**△▽ to set "DECODER" to "ON" ("OFF" is the default setting).

5 ENTER NEW CHANNEL INFORMATION

Press **OK** or **STORE**, and the Confirmation screen appears.

- Repeat steps **3** through **5** as necessary.

6 CLOSE CONFIRMATION SCREEN

Press **CH SET**.

- To input the station name, see page 30.
- To change positions, see "Change Station Channel Position" (at right).

When Receiving A Scrambled Broadcast

Make sure that the **AV2 SELECT** switch is set to "DECODER" (☞ pg. 4).

1– Perform steps **1** and **2** above.
2– Press **PUSH JOG**△▽◁▷ to select the position of the channel broadcasting the scrambled programmes, then press **OK** three times.
3– Press **PUSH JOG**▷ until "DECODER" begins blinking, and set it to "ON" by pressing **PUSH JOG**△▽.
4– Press **OK** to access the Confirmation screen.
- Repeat steps **2** – **4** for each additional channel.

5– Press **CH SET**.

Perform steps **1** and **2** of the previous procedure to access the Confirmation screen before continuing.

Delete A Channel

1 SELECT ITEM

Press **PUSH JOG**△▽◁▷ until the item you want to delete begins blinking.

2 DELETE CHANNEL

Press **CANCEL**.

- The item directly beneath the cancelled one moves up one line.
- Repeat steps **1** and **2** as necessary.

3 CLOSE CONFIRMATION SCREEN

Press **CH SET**.

Change Station Channel Position

1 SELECT ITEM

Press **PUSH JOG**△▽◁▷ until the item you want to move begins blinking. Then press **OK** and the station name (ID) and its channel (CH) number begin blinking.

2 SELECT NEW POSITION

Press **PUSH JOG**△▽◁▷ to move the station to the new channel position, then press **OK**.

Example: If you moved the station in position 3 to position 7, the stations originally in positions 4–7 each move up one space.

- Repeat steps **1** and **2** as necessary.

3 CLOSE CONFIRMATION SCREEN

Press **CH SET**.

Perform steps **1** and **2** of "Storing Channels Manually" on page 31 to access the Confirmation screen before continuing.

Set Stations (A)

1 SELECT ITEM

Press **PUSH JOG**△▽◁▷ until the item you want begins blinking. Then press **OK** twice and the station's name (ID) begins blinking.

2 SELECT NEW STATION

Press **PUSH JOG**△▽ until the new station's name (ID) you want to store begins blinking.
Registered station names (☞ pg. 33) appear as you press **PUSH JOG**△▽.

3 SWITCH STATIONS

Press **OK**.

- Repeat steps **1** through **3** as necessary.

4 CLOSE CONFIRMATION SCREEN

Press **CH SET**.

Set Stations (B)

NOTE:

*First perform step **1** of the above procedure.*

2 SELECT STATION NAME CHARACTER

Press **PUSH JOG** ▷ and the first letter of the station name begins blinking.

3 ENTER NEW CHARACTER

Press **PUSH JOG**△▽ to cycle through the characters (A–Z, 0–9, –, ✱, +, ⎵ (space)) and stop when the desired one is indicated, then press **PUSH JOG** ▷ to enter. Enter the remaining characters the same way (maximum of 4).
After entering all characters, press **OK**.

- Repeat steps **1** through **3** as necessary.
- If you make a mistake, press **PUSH JOG** ◁ until the incorrect character begins blinking. Then enter the correct character by pressing **PUSH JOG**△▽.

4 CLOSE CONFIRMATION SCREEN

Press **CH SET**.

Fine-Tuning Channels Already Stored

1 SELECT CHANNEL TO FINE-TUNE

Press **PUSH JOG**△▽◁▷ until the channel you want to tune begins blinking.

2 ACCESS MANUAL CH. SET SCREEN

Press **OK** three times. The Manual Ch. Set screen appears.

3 PERFORM TUNING

Press **PUSH JOG**△▽ until the picture is its clearest. Then press **OK**.

- The Confirmation screen appears.
- Repeat steps **1** through **3** as necessary.

4 CLOSE CONFIRMATION SCREEN

Press **CH SET**.

ID*	STATION NAME
1000	TV1000
3SAT	3SAT
ADLT	ADULT
ANT3	ANTENA3
ARD	ARD
ARTE	ARTE
BBC	BBC GROUP
BBC1	BBC1
BBC2	BBC2
BR3	BAYERN3
C+	CANAL PLUS
C1	PORTUGUSES
CAN5	CANALE5
CH4	CHANNEL4
CH5	CHANNEL5
CHLD	CHILD
CINE	CINEMA
CLUB	TELECLUB
CMT	CMT
CNN	CNN
CSUR	ANDALUCIA
DISC	DISCOVERY
DR	DR TV
DRS	DRS
DSF	DSF
ETB1	ETB1
ETB2	ETB2
EURO	EURONEWS
EUSP	EUROSPORTS
FEMM	FEMMAN
FILM	FILM
FNET	FILMNET
FR2	France2
FR3	France3
GALA	GALAVISION
HR3	HESSEN3
INFO	INFO-KANAL
ITA1	ITALIA1
ITA7	ITALIA7
ITV	ITV
JSTV	JSTV
KA2	KA2
KAB1	KABEL1
KAN2	KANAL2
LOCA	LOCAL
M6	M6
MBC	MBR
MCM	MCM
MDR	MDR
MOVE	MOVIE
MTV	MTV
MTV3	MTV3
N3	NORD3
N-TV	N-TV
NBC	NBC SUPER
NDR	NDR
NED1	NED1
NED2	NED2
NED3	NED3
NEWS	
NRK	NRK
ODE	ODEON
ORF1	ORF1

ID*	STATION NAME
ORF2	ORF2
ORF3	ORF3
OWL3	OWL3
PREM	PREMIERE
PRO7	PRO7
RAI1	RAI1
RAI2	RAI2
RAI3	RAI3
RET4	RETE4
21	TELE21
RTBF	RTBF1 or 2
RTL	RTL
RTL2	RTL2
RTL4	RTL4
RTP	RTP
S4	SCHWEIZ4
SAT1	SAT1
SBS	SBS
SHOW	SHOW
SIC	SOCIEDADE
SKY	SKY CHANNEL
SKYN	SKY NEWS
SPRT	SPORT
SRTL	SUPER RTL
STAR	STAR-TV
SVT1	SVT1
SVT2	SVT2
SW3	SUEDWEST3
TCC	TCC
TELE	TELE
TEL5	TELE5
TF1	TF1
TM3	TM3
TMC	TELEMONTECARLO
TNT	TNT INT
TRT	TRT INT
TSI	TSI
TSR	TSR
TV1	BRTN TV1
TV2	BRTN TV2
TV3	TV3
TVE1	TVE1
TVE2	TVE2
TVG	TV GALICIA
TVI	TV INDEPENDENT
TVN	TV NORGE
VCR	VIDEO
VERO	VERONICA
VH-1	VH-1
VIVA	VIVA
VIV2	VIVA2
VMTV	VIDEO MUSIC
VOX	VOX
VT4	VT4
VTM	VTM
WDR1	West1
WDR3	West3
YLE1	YLE1
YLE2	YLE2
ZDF	ZDF
ZTV	ZTV

* The ID designator appears on your recorder's front display panel and in the on-screen listing.

Before requesting service for a problem, use this chart and see if you can repair the trouble yourself. Small problems are often easily corrected, and this can save you the trouble of sending your video recorder off for repair.

POWER

SYMPTOM	POSSIBLE CAUSE	CORRECTIVE ACTION
1. No power is applied to the recorder.	• The mains power cord is disconnected.	Connect the mains power cord.
2. The clock is functioning properly, but the recorder cannot be powered.	• "⏲" is displayed on the display panel.	Press the **TIMER** button to turn the "⏲" indicator off.

TAPE TRANSPORT

SYMPTOM	POSSIBLE CAUSE	CORRECTIVE ACTION
1. The tape does not run during recording.	• "▯▯" is displayed on the display panel.	Press **PLAY** to turn the "▯▯" indicator off.
2. The tape stops during rewind or fast-forward.	• "M" is displayed on the display panel.	Press **C.MEMORY** to deactivate the Counter Memory function and turn the "M" indicator off.
3. The tape will not rewind or fast-forward.	• The tape is already fully rewound or fast-forwarded.	Check the cassette.

PLAYBACK

SYMPTOM	POSSIBLE CAUSE	CORRECTIVE ACTION
1. The playback picture does not appear while the tape is running.	• If you're using the RF OUT connection, the TV receiver's channel selector is set to the wrong video channel. • If you're using the AV connection, the TV receiver is not set to the AV mode.	If you are using the RF OUT connection, set the TV receiver to the RF converter channel (UHF 36). (☞ pg. 3) If you are using the AV connection, set the TV to its AV mode.
2. Noise appears during visual search.	• This is normal.	
3. Noise appears during normal playback.	• The automatic tracking mode is engaged.	Try manual tracking. (☞ pg. 11)
4. Noise appears during slow-motion playback.	• The automatic tracking mode is engaged.	Try manual tracking. (☞ pg. 11)
5. Noise appears during still playback.		Press **PAUSE** a few times to remove the noise bars from the screen.
6. Breaks are noticeable in Hi-Fi soundtrack	• Automatic tracking is engaged.	Engage and adjust tracking manually. (☞ pg. 11)
7. The playback picture is blurred or interrupted while TV broadcasts are clear.	• The video heads may be dirty.	Consult your JVC dealer.

RECORDING

SYMPTOM	POSSIBLE CAUSE	CORRECTIVE ACTION
1. Recording cannot be started.	• There is no cassette loaded, or the cassette loaded has had its Record Safety tab removed.	Insert a cassette, or using adhesive tape, reseal the slot where the tab was removed.
2. TV broadcasts cannot be recorded.	• "AU" has been selected as the input mode.	Set to the desired channel.

3. Tape-to-tape editing is not possible.	• The source (another video recorder, camcorder) has not been properly connected. • All necessary power switches have not been turned on. • The input mode is not correct.	Confirm that the source is properly connected. Confirm that all units' power switches are turned on. Set the input mode to "AU".
4. Camcorder recording is not possible.	• The camcorder has not been properly connected. • The input mode is not correct.	Confirm that the camcorder is properly connected. Set the input mode to "AU".

TIMER RECORDING

SYMPTOM	POSSIBLE CAUSE	CORRECTIVE ACTION
1. Timer recording won't work.	• The clock and/or the timer have been set incorrectly. • The timer is not engaged.	Re-perform the clock and/or timer settings. Press **TIMER** and confirm that "⏲" is displayed on the display panel.
2. On-screen timer programming is not possible.	• Timer recording is in progress.	Timer programming can't be performed while a timer recording is in progress. Wait until it finishes.
3. "⏲" and "📼" on the display panel won't stop blinking.	• The timer is engaged but there's no cassette loaded.	Load a cassette with the Record Safety tab intact, or cover the hole using adhesive tape.
4. The cassette is automatically ejected, and "⏲" and "📼" on the display panel won't stop blinking.	• The loaded cassette has had its Record Safety tab removed.	Remove the cassette and cover the hole with adhesive tape, or insert a cassette with the Record Safety tab intact.
5. "⏲" blinks for 10 seconds and the Timer mode is disengaged.	• **TIMER** has been pressed when there are no programs in memory, or the timer record information has been programmed incorrectly.	Check the programmed data and re-program as necessary, then press **TIMER** again.
6. The cassette is automatically ejected, the power shuts off and "⏲" and "📼" won't stop blinking.	• The end of the tape was reached during timer recording.	The programme may not have been recorded in its entirety. Next time make sure you have enough time on the tape to record the entire programme.
7. ShowView does not timer-record properly.	• The recorder's channel positions have been set incorrectly.	Refer to "Guide Prog. Number Set" and re-perform the procedure (☞ pg. 20).

OTHER PROBLEMS

SYMPTOM	POSSIBLE CAUSE	CORRECTIVE ACTION
1. Whistling or howling is heard from the TV during camcorder recording.	• The camcorder's microphone is too close to the TV. • The TV's volume is too high.	Position the camcorder so its microphone is away from the TV. Turn the TV's volume down.
2. When scanning channels, some of them are skipped over.	• Those channels have been designated to be skipped.	If you need the skipped channels, restore them (☞ pg. 31).
3. The channel cannot be changed.	• Recording is in progress.	Press **PAUSE** to pause the recording, change channels, then press **PLAY** to resume recording.
4. The remote control won't operate the TV.	• The **TV/VCR** switch is in the wrong position.	Set the switch to TV.
5. Channel settings that were made manually seem to have changed or disappeared.	• After the manual settings were made, Auto Channel Set was performed.	Perform manual setting again.

PLAYBACK

Q. What happens if the end of the tape is reached during playback or search?
A. The tape is automatically rewound to the beginning.

Q. Can the video recorder indefinitely remain in the still mode?
A. No. It stops automatically after 5 minutes to protect the heads.

Q. During search, slow, still and frame-by-frame playback, I can't hear any audio. What's the problem?
A. This is normal.

Q. When returning from multi-speed search to normal playback, the picture is disturbed. Should I be concerned about this?
A. No, it is normal.

Q. Noise bars appear during multi-speed search. What's the problem?
A. This is normal.

Q. Other than preventing further recording, what effect does removing the Record Safety tab have?
A. It disables marking of index codes.

Q. Sometimes, during Index Search, the video recorder can't find the programme I want to see. Why not?
A. There may be index codes too close together.

RECORDING

Q. When I pause and then resume a recording, the end of the recording before the pause is overlapped by the beginning of the continuation of recording. Why does this happen?
A. This is normal. It reduces distortion at the pause and resume points.

Q. Can the video recorder indefinitely remain in the Record-Pause mode?
A. No. The video recorder goes to its Stop mode automatically after 5 minutes to protect the heads.

Q. What happens if the tape runs out during recording?
A. The video recorder automatically rewinds it to the beginning.

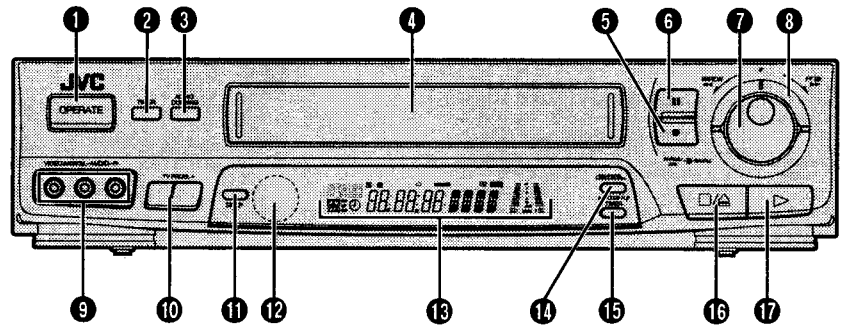
TIMER RECORDING

Q. " ○ " and "◴" remain lit on the display panel. Is there a problem?
A. No. This is a normal condition for a timer recording in progress.

Q. Can I program the timer while I'm watching a tape or a TV broadcast?
A. You won't see the picture as it is replaced by the on-screen menu, but the audio from the program or tape you're viewing can be heard.

ATTENTION:
This recorder contains microcomputers. External electronic noise or interference could cause malfunctioning. In such cases, switch the recorder off and unplug the mains power cord. Then plug it in again and turn the recorder on. Take out the cassette. After checking the cassette, operate the unit as usual.

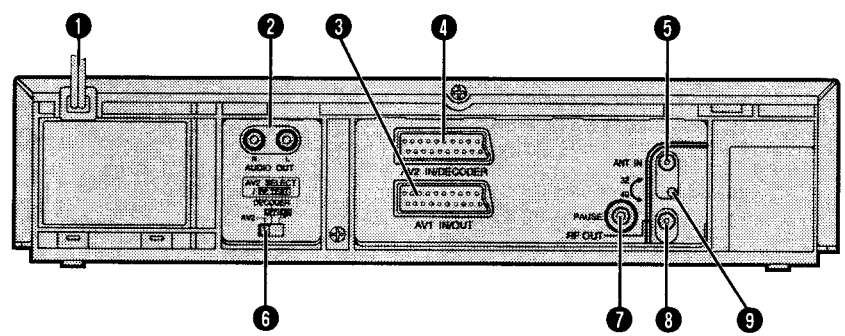
FRONT VIEW



*Remove the cap to use the front panel connectors.

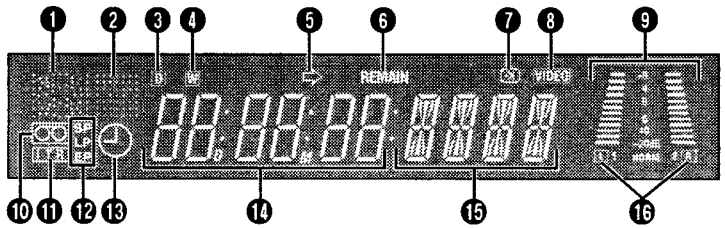
❶ OPERATE Button (☞ pg. 5)
❷ TIMER Button (☞ pg. 23)
❸ AUDIO DUBBING Button (☞ pg. 28)
❹ Cassette Loading Slot
❺ RECORD Button (☞ pg. 14)
❻ PAUSE Button (☞ pg. 10)
❼ TV PROG. Dial (☞ pg. 14)
JOG Dial (☞ pg. 10)
❽ SHUTTLE Ring (☞ pg. 10)
❾ VIDEO and AUDIO Input Connectors (☞ pg. 27)
❿ TV PROG. +/– Buttons (☞ pg. 5)
⓫ SP/LP [Tape Speed] Button (☞ pg. 14)
⓬ Infrared Beam Receiving Window
⓭ Display Panel (☞ pg. 38)
⓮ REVIEW Button (☞ pg. 11)
⓯ AUTO SP/LP TIMER Button (☞ pg. 25)
⓰ STOP/EJECT Button (☞ pg. 9)
⓱ PLAY Button (☞ pg. 9)

REAR VIEW



❶ Mains Power Cord (☞ pg. 3)
❷ AUDIO OUT(L/R) Connectors (☞ pg. 3)
❸ AV1 IN/OUT Connector (☞ pg. 3)
❹ AV2 IN/DECODER Connector (☞ pg. 4)
❺ ANT. IN Connector (☞ pg. 3)
❻ AV2 SELECT/RF TEST Switch (☞ pg. 4)
❼ Remote PAUSE Connector (☞ pg. 27)
❽ RF OUT Connector (☞ pg. 3)
❾ RF Output Channel Adjustment Screw (☞ pg. 4)

DISPLAY PANEL



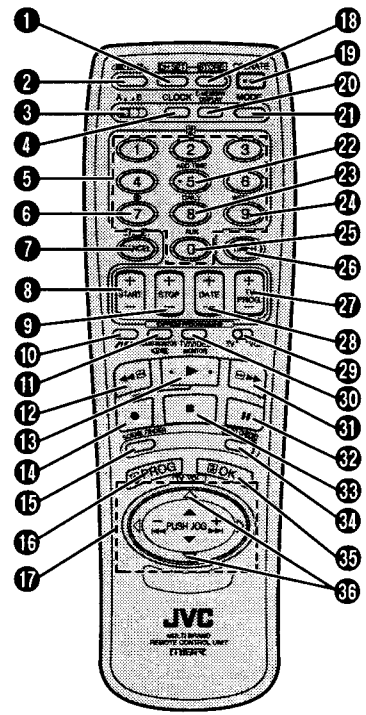
❶ and ❷ Symbolic Mode Indicators

PLAY:	▷	STILL: FORWARD SLOW:	▷
FF:	▷▷	STILL: REVERSE SLOW:	◁
REW:	◁◁	RECORD:	○
FF VARIABLE SHUTTLE SEARCH:	▷ ▷▷ *	RECORD PAUSE:	○
REW VARIABLE SHUTTLE SEARCH:	◁ ◁◁ *	AUDIO DUBBING:	⊖
REVERSE PLAY:	◁	AUDIO DUBBING PAUSE:	⊖

* The indicator will blink during turbo search.

❸ "DAILY" Program Mark (☞ pg. 23)
❹ "WEEKLY" Program Mark (☞ pg. 23)
❺ Start Time/Stop Time Indicator (☞ pg. 22)
❻ Tape Remaining Time Indicator (☞ pg. 13)
❼ PDC/VPS Indicator (☞ pg. 25)
❽ VIDEO Indicator (☞ pg. 5)
❾ B.E.S.T. Picture System Display (☞ pg. 15)
Audio Level Indicator
❿ "Cassette Loaded" Mark
⓫ Instant Timer Recording (☞ pg. 19)
⓬ Tape Speed Indicators (☞ pg. 14)
⓭ "Timer" Indicator (☞ pg. 23)
⓮ Clock/Counter/Tape Remaining Time Display (☞ pg. 7)
⓯ Channel/Mode Display (☞ pg. 5)
⓰ Audio Mode Indicator (☞ pg. 13)

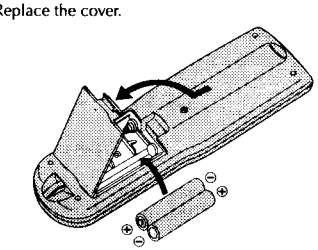
REMOTE CONTROL



❶ CH SET Button (☞ pg. 5)
❷ REVIEW Button (☞ pg. 11)
❸ A/B CODE Switch (☞ pg. 13)
❹ CLOCK Button (☞ pg. 7)
❺ NUMBER Keys (☞ pg. 14)
❻ ⊡ (PDC/VPS) Button (☞ pg. 25)
❼ CANCEL Button (☞ pg. 21)
C.RESET Button (☞ pg. 13)
❽ START +/– Button ☞ pg. 24)
❾ STOP +/– Button (☞ pg. 24)
❿ SP/LP Button (☞ pg. 11)
DIGIT ENTRY Button (☞ pg. 30)
⓫ AUDIO MONITOR Button (☞ pg. 13)
TV MUTE Button (☞ pg. 30)
⓬ Rewind [REW] Button (☞ pg. 9)
⓭ PLAY Button (☞ pg. 9)
⓮ RECORD Button (☞ pg. 14)
⓯ SCENE FINDER Button (☞ pg. 12)
⓰ PROG Button (☞ pg. 22)
⓱ PUSH JOG △▽◁▷Button (☞ pg. 5)
PUSH JOG ◁▷ Button (☞ pg. 10)
⓲ STORE Button (☞ pg. 31)
C.MEMORY Button (☞ pg. 13)
⓳ OPERATE Button (☞ pg. 5)
⓴ DISPLAY Button (☞ pg. 13)
㉑ MODE Button (☞ pg. 15)
㉒ ADD TIME Button (☞ pg. 23)
㉓ DAILY Button (☞ pg. 23)
㉔ WEEKLY Button (☞ pg. 23)
㉕ AUX Button (☞ pg. 26)
㉖ TIMER Button (☞ pg. 23)
㉗ TV PROG. +/– Button (☞ pg. 5)
㉘ DATE +/– Button (☞ pg. 24)
㉙ TV/VCR Switch (☞ pg. 30)
㉚ TV/VIDEO Button (☞ pg. 5)
㉛ Fast Forward [FF] Button (☞ pg. 9)
㉜ PAUSE Button (☞ pg. 10)
㉝ STOP Button (☞ pg. 9)
㉞ PROG CHECK Button (☞ pg. 25)
㉟ OK Button (☞ pg. 5)
㊱ TV VOL △▽ Button (☞ pg. 30)

Installing Batteries

1 Open the battery compartment cover.
2 Insert 2 "R6"-size batteries (provided) in the correct directions.
3 Replace the cover.



How To Use

The remote control can operate most of your video recorder's functions, as well as basic functions of TV sets of JVC and other brands (☞ pg. 30).

- Point the remote control toward the sensor window.
- The maximum operating distance of the remote control is about 8 m.

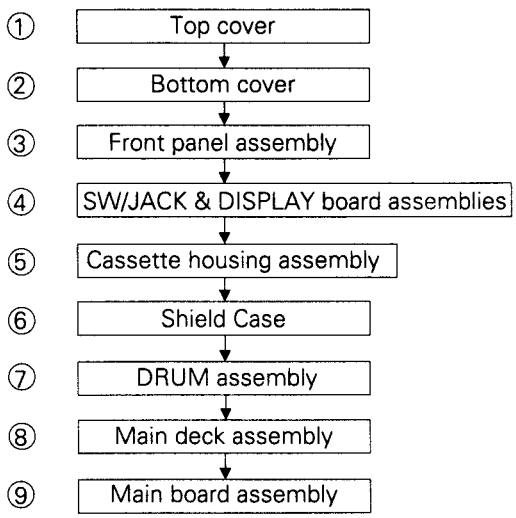
NOTE:

If for some reason the remote control doesn't work properly, remove its batteries, wait a short time and then try again.

SECTION 1
DISASSEMBLY

1.1 DISASSEMBLY FLOW CHART

This flowchart lists shows the disassembly steps for the cabinet parts and P.C. boards in order to gain access to item(s) to be serviced. When reassembling, perform the step(s) in reverse order. Bend,route and dress the flat cables as they were originally.



1.2 HOW TO READ THE DISASSEMBLY AND ASSEMBLY

STEP /LOC NO.	PART NAME	FIG. NO.	POINT	NOTE
①	TOP COVER	D1	5(S1)	
②	BOTTOM COVER	D2	(S2), 7(L1)	
③	FRONT PANEL ASSEMBLY	D3	7(L2),*JOG/SHUTTLE	<NOTE1>
④	SW/JACK & DISPLAY BOARD ASSEMBLIES	D4	13(L3),*CN1201 *CN1204	<NOTE2>
⑤	CASSETTE HOUSING ASSEMBLY	D5	2(S3) ,2(S4), EARTH PLATE	<NOTE3>
⑥	SHIELD CASE	D6	2(S5),*CN1,	
⑦	DRUM ASSEMBLY	D7	3(S6),WR1,	<NOTE4>
⑧	MAIN DECK ASSEMBLY	D8	2(S7),WR2 WR3,2(L4),*CN703	<NOTE5>
⑨	MAIN BOARD ASSEMBLY	D9	3(S8)	

(1) (2) (3) (4) (5)

(1) Order of steps in Procedure
When reassembling, perform the step(s) in the reverse order. These numbers are also used as the identification (location) NO. of parts Figures.
(2) Part name to be removed or installed.
(3) Fig.No. showing procedure or part location
(4) Indentification of part to be removed,unhooked,unlocked, released,unpluged,unclamped or unsoldered. P = Spring, W = Washer, S = Screw, L = Locking tab, * = Unhook,unlock, release,unplug or unsolder.
(5) Adjustment information for installation

<NOTE1>
When reattaching the front panel assembly, make sure that the door opener (ⓐ) of the cassette housing assembly is lowered in position prior to the reinstallation.

<NOTE2>
When plugging the connector in, check that the flat wire is inserted properly and fully.

<NOTE3>
When reattaching the cassette housing assembly, pay careful attention to the switch lever not to make it touch the REC switch knob of the REC SAFETY board assembly from the upside.
(If the REC switch knob of the REC SAFETY board assembly is damaged, cassette loading is impossible.)

<NOTE4>
When plugging the connector in, check that the flat wire is inserted properly and fully.

<NOTE5>
- When removing the Main deck assembly only, unhook the two spacers connecting it with the Main board assembly with pliers from the back side of the Main board assembly first, and then remove the Main deck assembly.
- When reattaching the Main deck assembly to the Main board assembly, make sure to set the spacers into the retaining slots respectively.

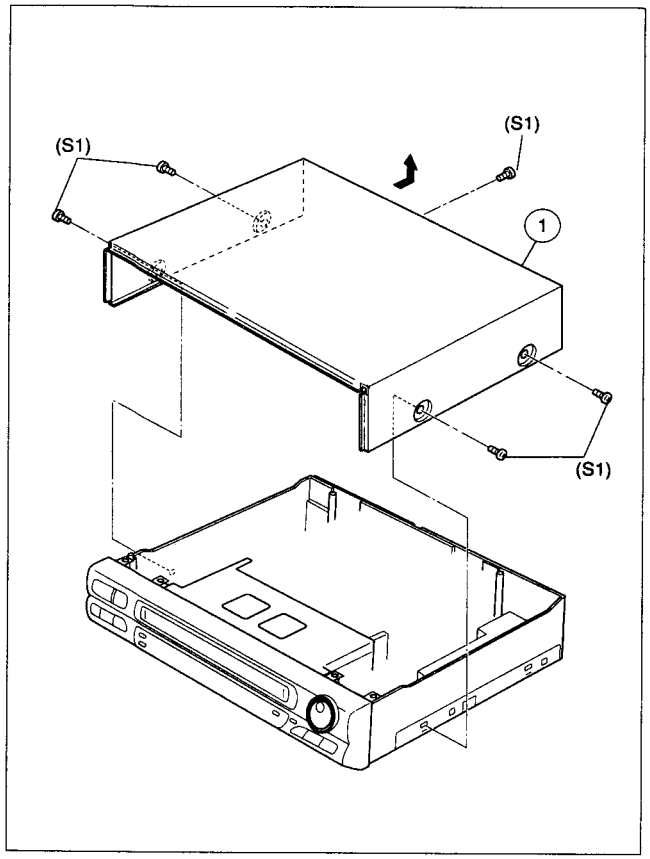


Fig. D1

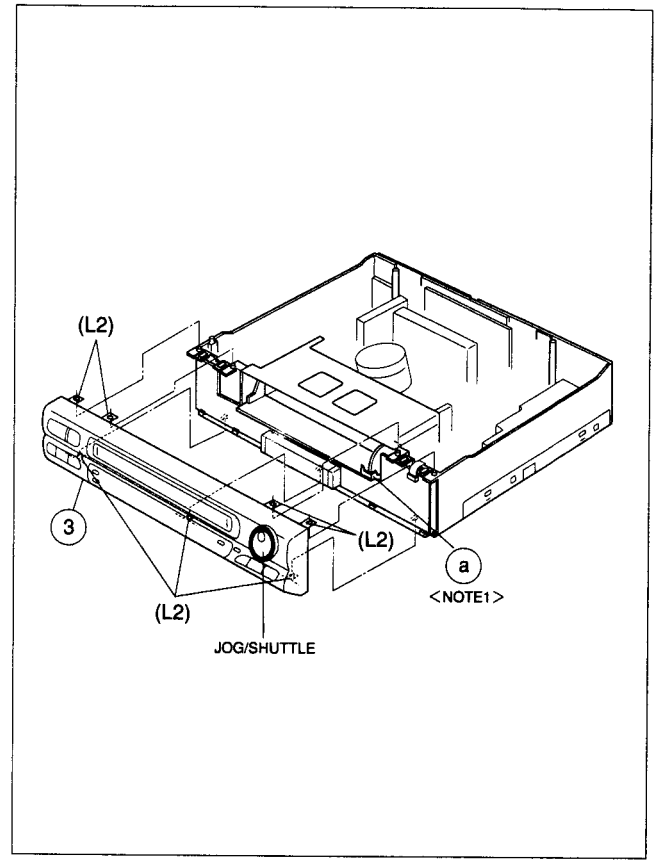


Fig. D3

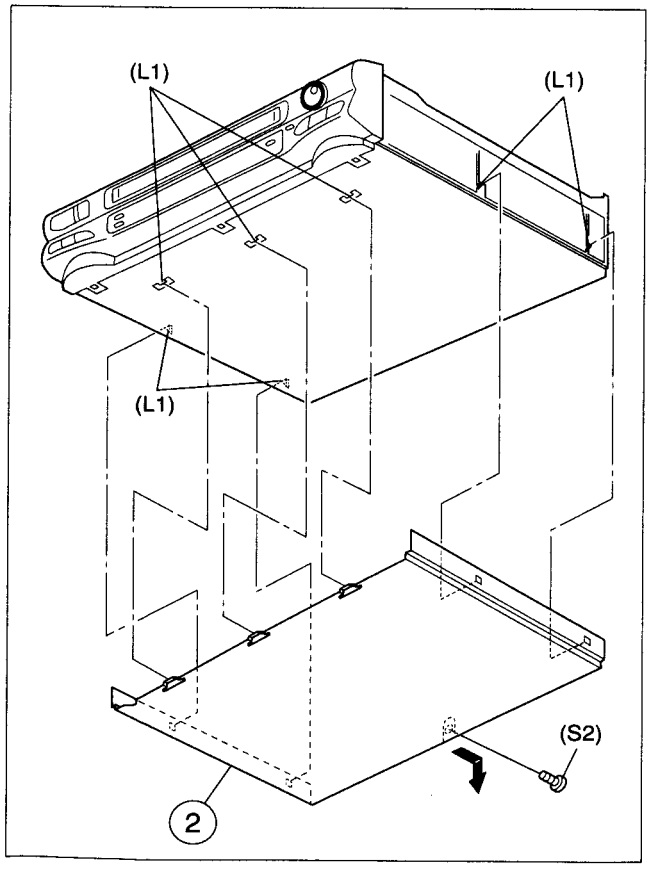


Fig. D2

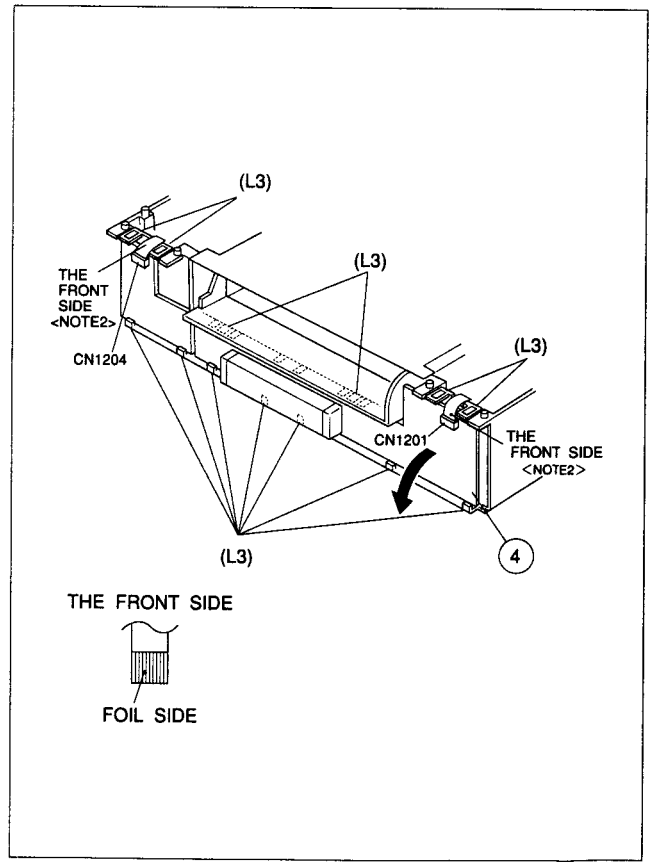


Fig. D4

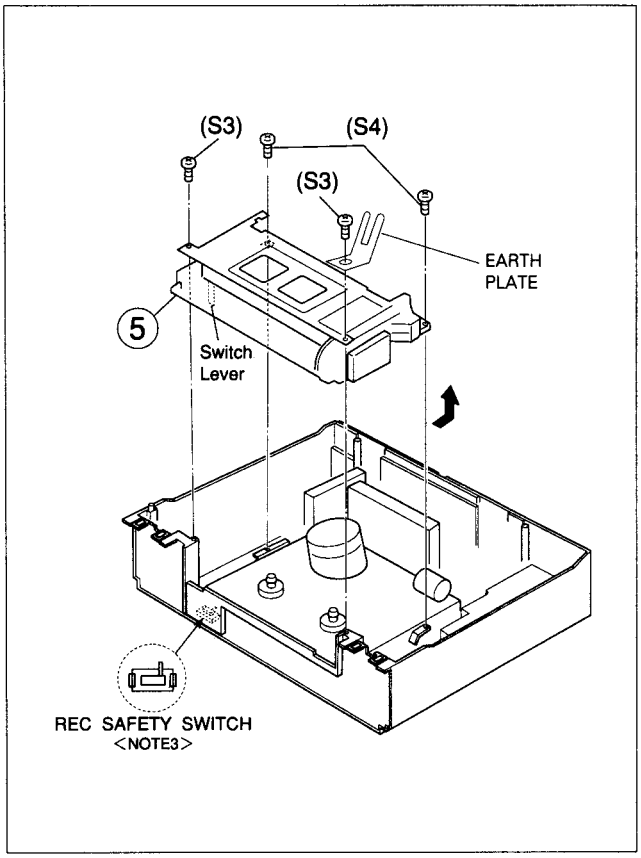


Fig. D5

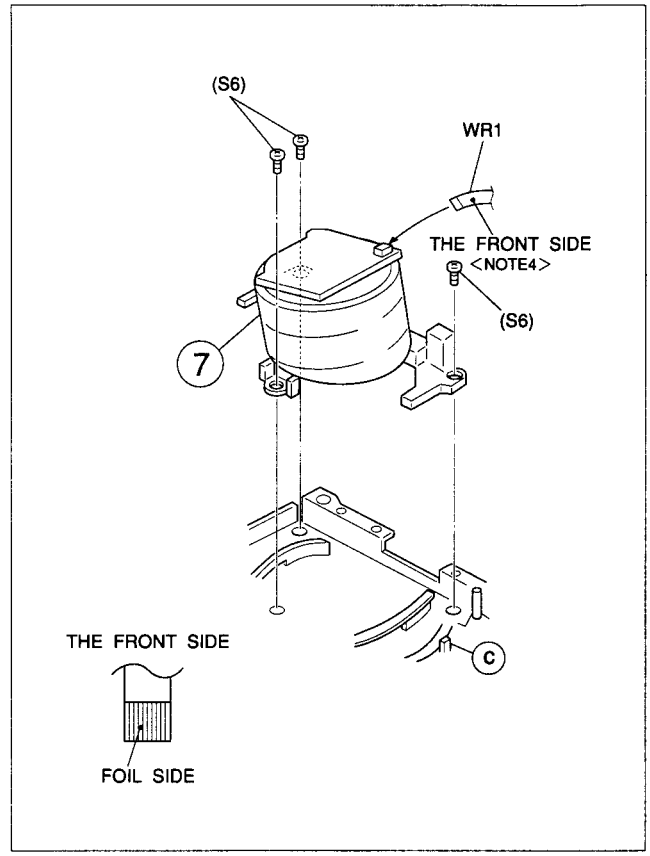


Fig. D7

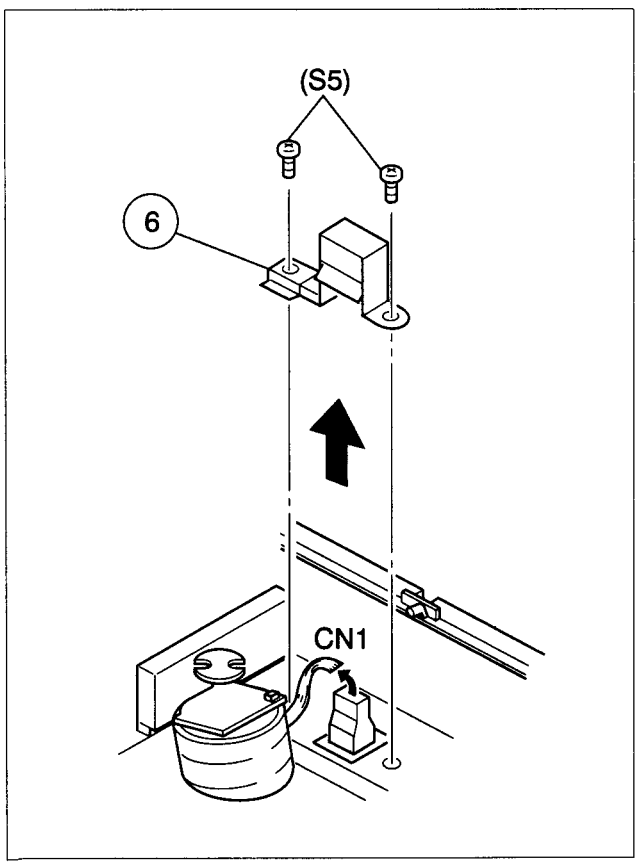


Fig. D6

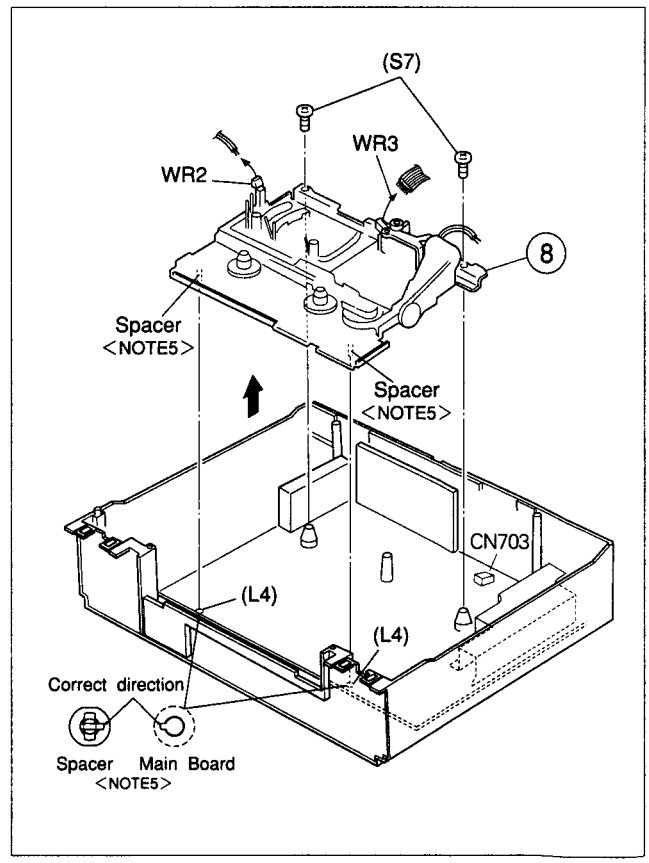


Fig. D8

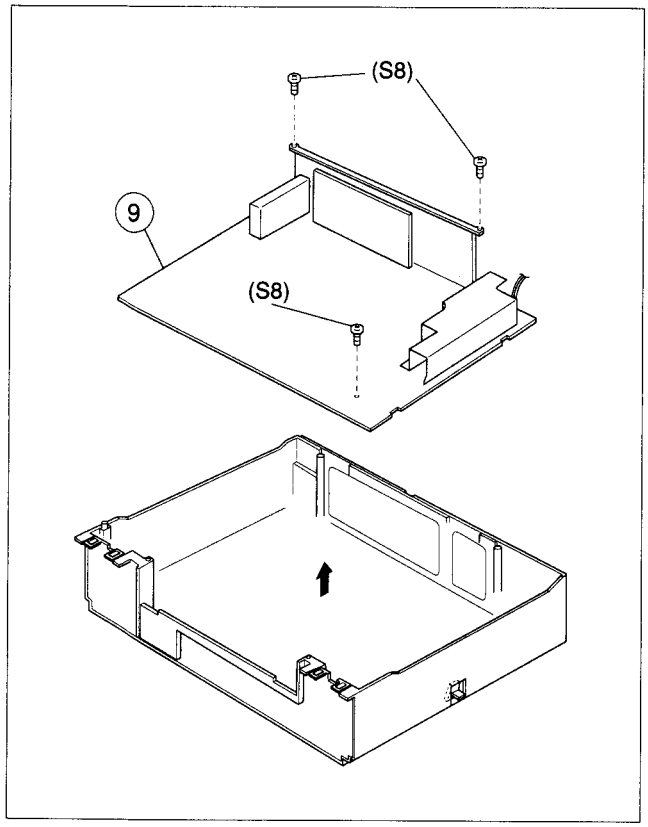


Fig. D9

1.4 CASSETTE HOUSING INSTALLATION

NOTE: *Observe the mechanical phase and position (see figure) when installing the cassette housing assembly. If these are incorrect, the system will not operate properly even when tape is inserted.*

1. Check that the hole of the control cam are aligned to the deck hole. If necessary, turn the loading motor belt by hand to adjust the position.

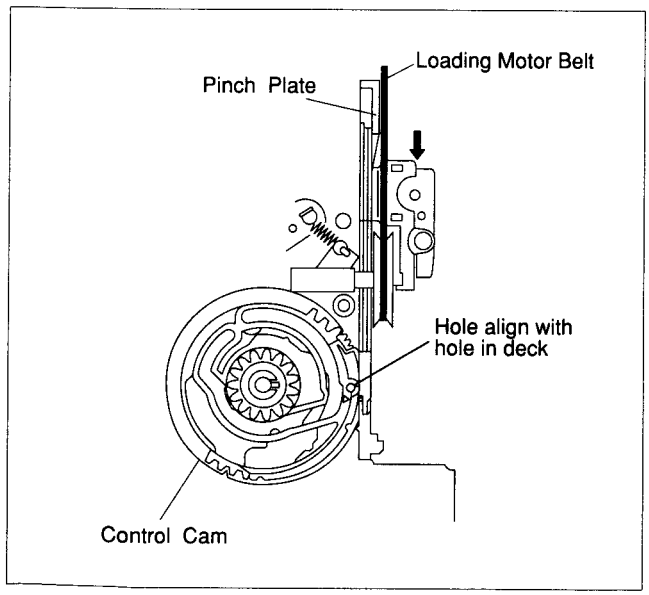


Fig. 1-4-1

1.5 SERVICE POSITION

1.5.1 How to take out the Mechanism and Main board assemblies.

(1) Remove the Top cover, Front panel assembly, CN1201 of the DISPLAY board assembly and CN1204 of the SW/JACK board assembly.

(2) Take out 5 screws (A), 2 screws (B) and 1 screw (C) as shown in Fig.1-5-1.

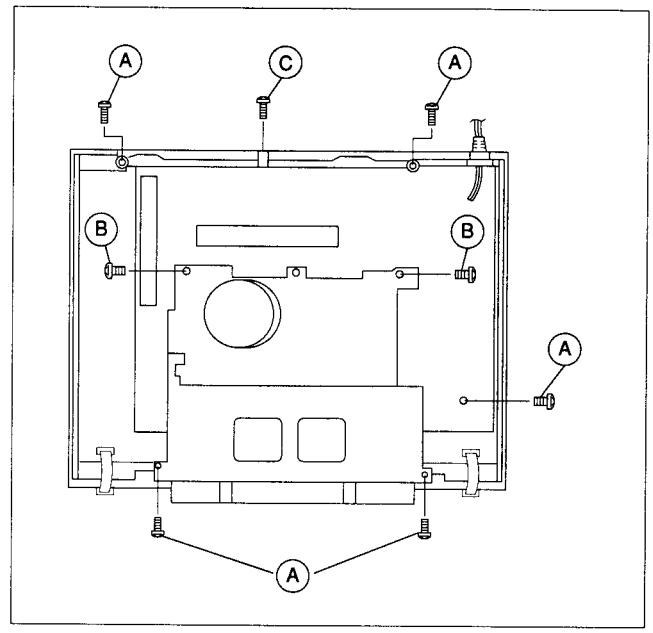


Fig. 1-5-1

(3) Remove the Mechanism assembly (including Cassette housing) and Main board assembly out of the chassis as shown in Fig. 1-5-2.

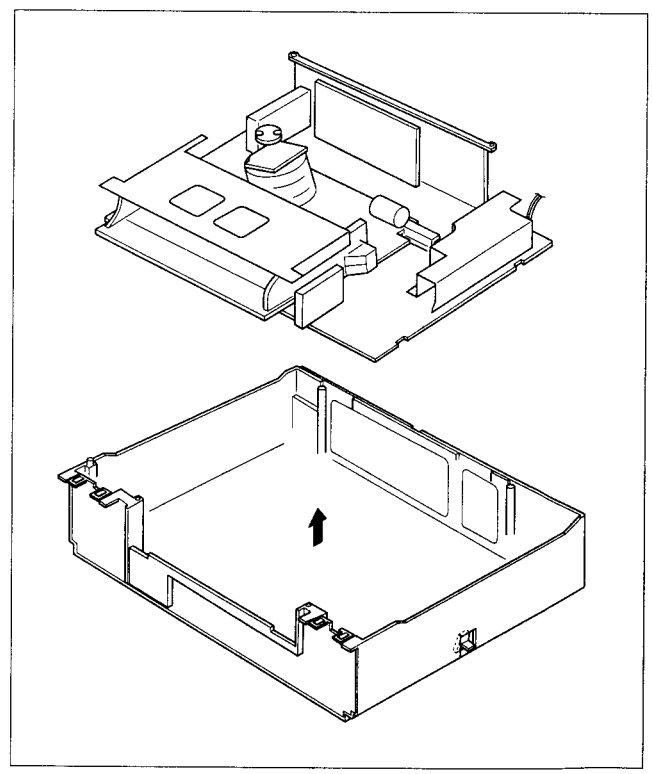


Fig. 1-5-2

(5) Turn over the Mechanism assembly and Main board assembly then connect CN1201and CN1204 of the DISPLAY board and SW/JACK board assembly.
(6) Carry out checks & repairs as necessary as shown in Fig.1-5-3.

Note: *When input the AUDIO/VIDEO signal from connector, connect CN1204 of the SW/JACK board assembly.*

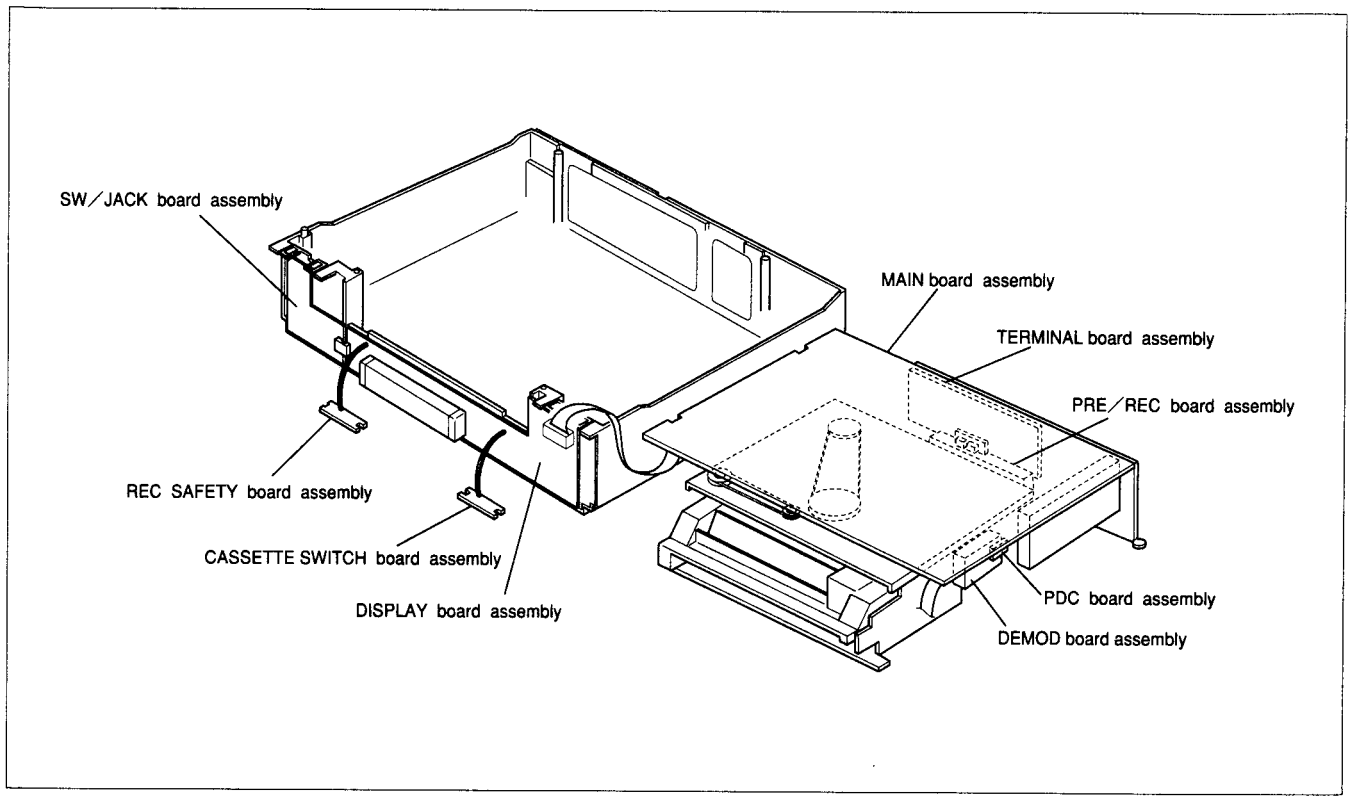


Fig. 1-5-3

1.5.2 Cautions on cassette loading when mechanism is in service position

The REC SAFETY board assembly of this set serves both for detecting the safety tab (erasure prevention tab) of a cassette and detecting a cassette loaded. Therefore, cassette loading in the condition that the mechanism is disassembled from the set needs manual operation of the switches of the REC SAFETY board assembly and the CASSETTE SWITCH board assembly.

1.5.3 Cassette loading and ejecting procedures when mechanism is in service position

(1) Insert a cassette tape halfway into the cassette housing assembly.
(2) Press the switch of the REC SAFETY board assembly to turn on.
(3) When the cassette loading begins and the cassette goes down to the bottom, immediately press the switch of the REC SAFETY board assembly to turn off and hold the status that the switch of the CASSETTE SWITCH board assembly is turned on. (Fix the switch with adhesive tape or put a screwdriver, etc. on it to leave the switch in the ON status.)
(4) In this status, desired operations (recording, playback, fast forward, rewind, etc.) can be performed.

Note: *When the mechanism is in the service position, the safety tab of cassette tape is not detected and recording on cassette tapes without safety tab is possible. Therefore, carefully choose a cassette tape for operation in this mode so as to avoid using cassette tapes of important recording.*

(5) For ejecting the cassette in this status, do it in the reverse order of cassette loading mentioned above.

Note: *If the manual operation REC SAFETY switch timing is incorrect, the cassette may be completely or partially ejected, and the cassette is often ejected incompletely. In such a case, it is possible to take out the cassette by hand.*

If it is desired to load a cassette again after the cassette is ejected in the above procedure, make sure to set the tray of the cassette housing assembly in the frontmost position prior to loading the cassette once again.

1.5.4 Opening on the chassis.

The chassis assembly has openings for easy access to the checkpoints and connector pins as shown in Fig.1-5-4.

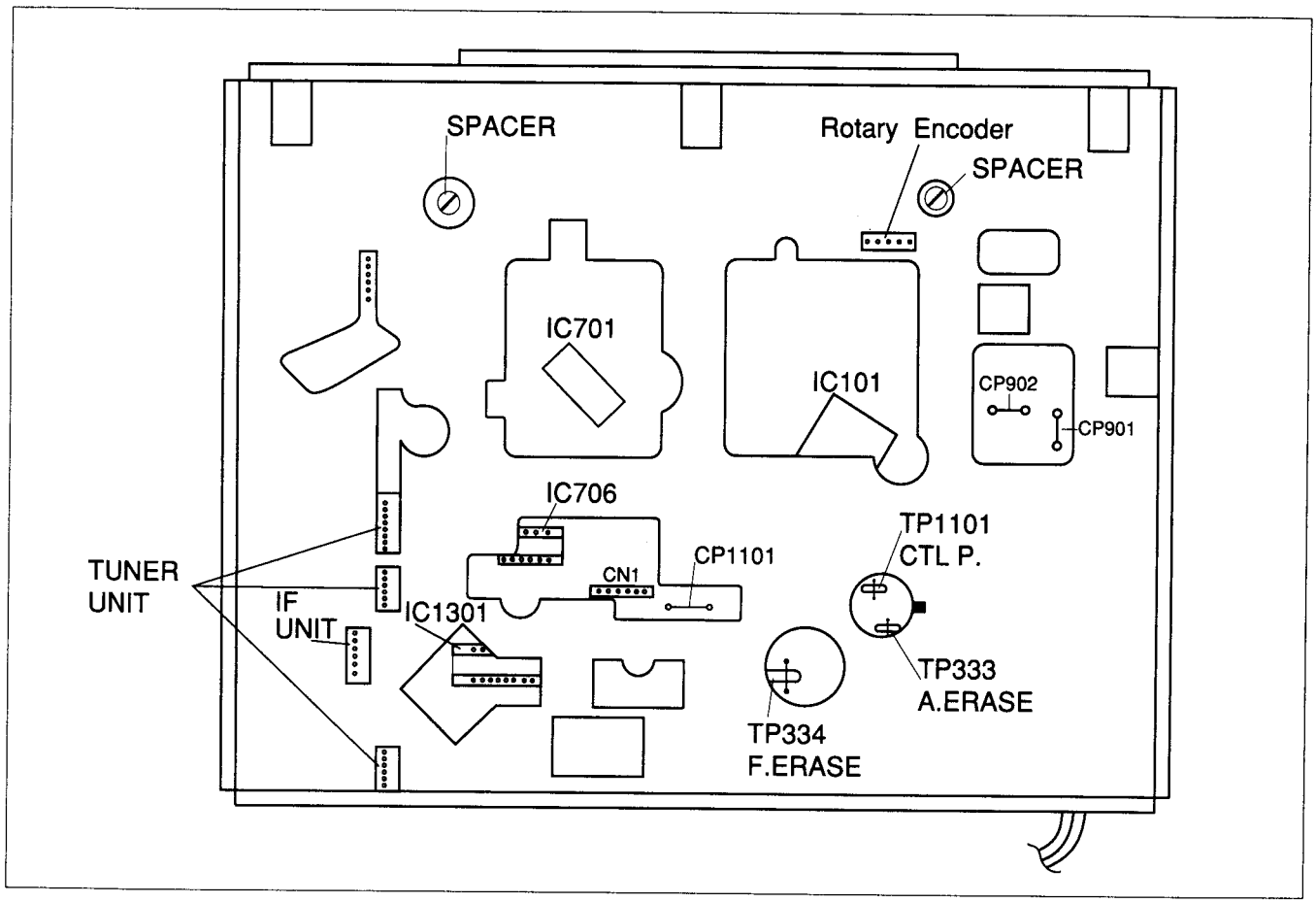


Fig. 1-5-4

1.6 MECHANISM SERVICE MODE

This model has a unique function to enter the mechanism into every operation mode without loading of any cassette tape. This function is called the "MECHANISM SERVICE MODE".

1.6.1 How to set the "MECHANISM SERVICE MODE"

(1) Disconnect VCR from AC.
(2) Remove the Top cover, Front panel assembly and cassette housing assembly. (See Page 1-2, 1-3)
(3) Connect TP1202 (GND) and TP1201 (TEST) on the DISPLAY board assembly with a jump wire.
(4) Connect VCR to AC.
(5) Press the POWER button.
(6) Select the desired operation modes with the operation buttons or remote controller.

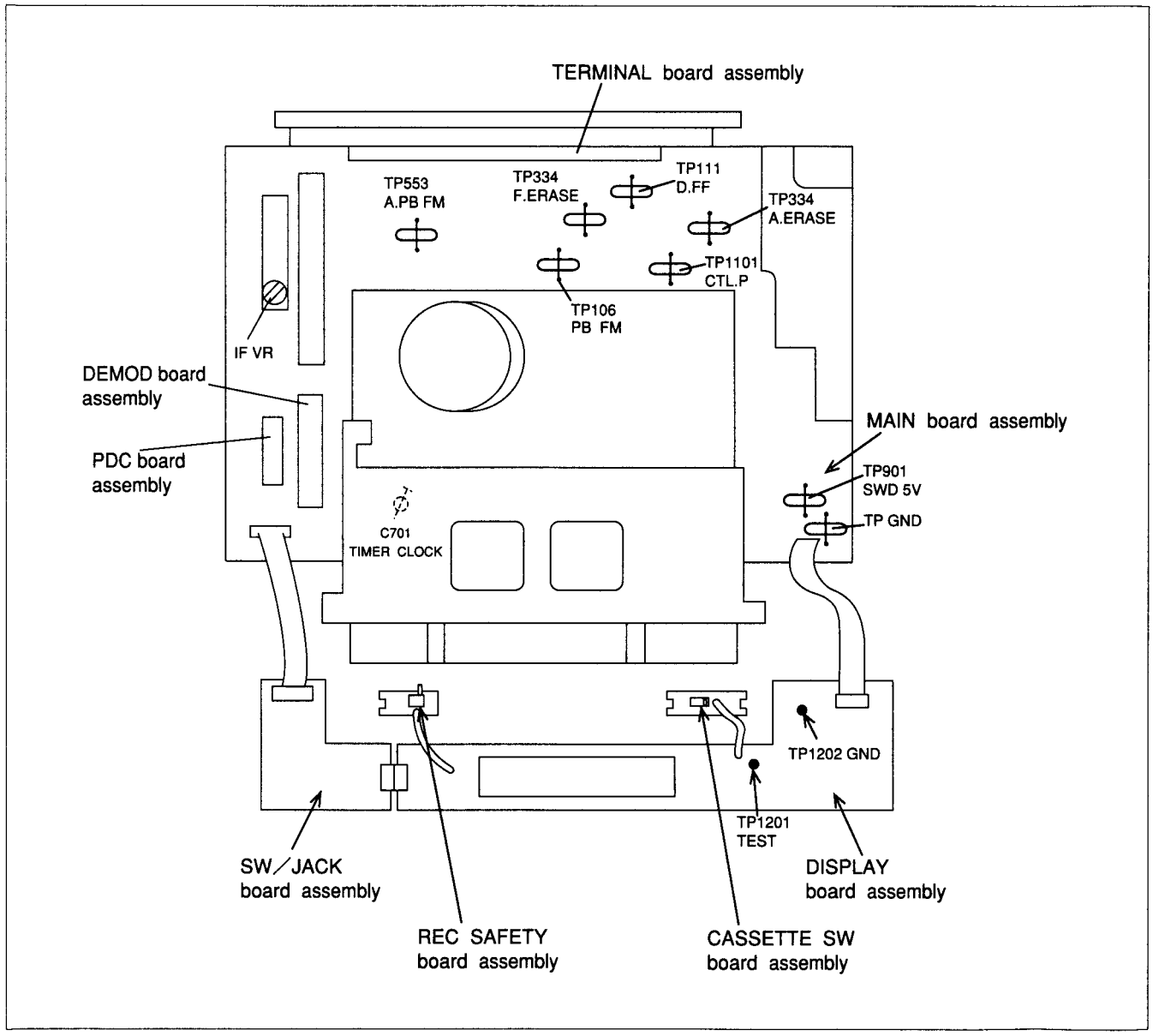


Fig. 1-6-1

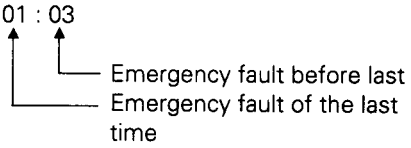
1.7 EMERGENCY DISPLAY FUNCTION

This product has the function to store the last two previous emergency faults which can be displayed in the FDP when servicing.

1.7.1 How to display record of an emergency faults

(1) Press "N" button of the presetting unit more than 2 seconds. and the two previous emergency faults are shown in the FDP.
(2) Press "N" button of the presetting unit again when return the normal mode.

[Example] E : 01 : 03



[Example] E : — — : — — ← No record of emergency

1.7.2 Detail of emergency faults

FDP	Symptom	Detect mode	Resulting mode
E : 01	Loading motor rotates for more than 8 Sec without shift to next mode.	Loading	POWER OFF
E : 02	Loading motor rotates for more than 8 Sec without shift to next mode.	Unloading	POWER OFF
E : 03	TU REEL FG input is absent(for more than 4 Sec)	REC/PLAY/FF/REW SEARCH FF/SEARCH REW	STOP → POWER OFF
E : 04	DRUM FF input is absent(for more than 3 Sec)	REC/PLAY/FF/REW SEARCH FF/SEARCH REW	STOP
E : 06	CAPSTAN FG input is absent(for more than 1 Sec)	REC/PLAY/FF/REW SEARCH FF/SEARCH REW	STOP → POWER OFF
E : 07	No SWD5V/12V	POWER ON	POWER OFF

Table 1-7-1 EMERGENCY FAULTS

1.7.3 How to clear emergency record

Press the COUNTER RESET button on the remote controller in the emergency record display mode,and the record of the emergency fault(s) is cleared.

SECTION 2
MECHANISM ADJUSTMENT

2.1 PREPARATION

2.1.1 Precautions

(1) Disconnect VCR from AC power before soldering.
(2) Avoid imparting stress to wires when disengaging connectors.
(3) Determine and correct the cause of difficulty before proceeding to adjustments.Do not disturb settings unnecessarily.
(4) Use care not to damage tabs,claws,etc during repairs.
(5) Install the cassette housing assembly only when the mechanism is in the MECHANISM ASSEMBLING MODE position.
(6) When installing the Front panel assembly,be sure to engage the housing door with the door opener of the cassette housing assembly.
If this is omitted,the cassette door will not open at Eject and the cassette can not be removed. (See SECTION 1 DISASSEMBLY.)

2.1.2 Check without cassette housing assembly.

Mechanism operations can be observed easily by removing the cassette housing assembly. Use the MECHANISM SERVICE MODE. (See SECTION 1 DISASSEMBLY.)

2.1.3 Manual removal of loaded tape

When the deck enters the emergency mode with cassette tape loaded and it can not be ejected by pressing the EJECT button,take out of the cassette tape according to the following procedure.

(1) Disconnect the power cord from AC outlet then take out the Top cover and Front panel assembly.
(2) Turn the loading motor on the Main deck assembly by hand in the unloading direction to where the pole base assembly (supply and take-up) is positioned below the cassette tape.At that time, pay careful attention to the tape not to get soiled with grease.
(3) Take out 4 screws of the cassette housing assembly.(See SECTION 1 DISASSEMBLY.)
(4) Remove the cassette housing with slackened tape and guard panel of cassette.
(5) Wind up the tape by turning the reel hub(either supply or take-up side for convenience) from the bottom of the cassette,and remove the cassette tape.

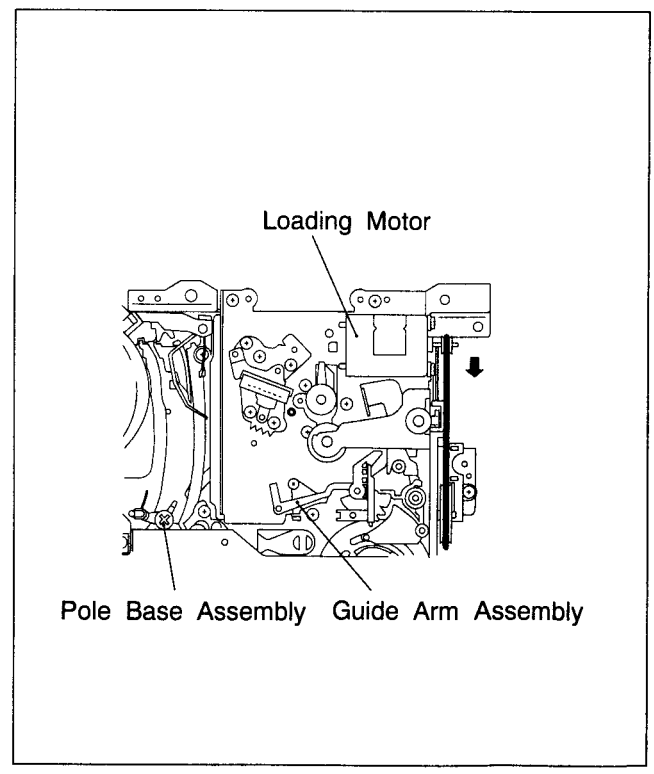


Fig. 2-1-1

2.1.4 Test Equipment

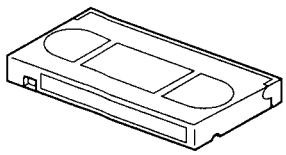
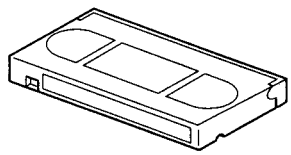
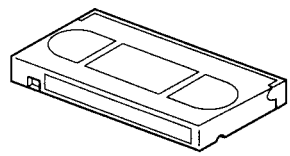
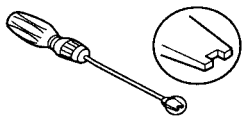
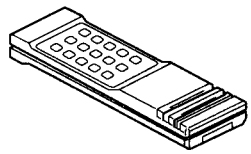
Alignment tape (SP) MHPE	Alignment tape (LP) MHPE-L	Back tension cassette gauge PUJ48076-2	A/C head positioning tool PTU94010
			
Roller driver PTU94002	Presetting unit PTU94008	Grease KYODO-SH-P	
			

Table 2-1-1 Test equipment

2.2 MAIN MECHANISM PARTS

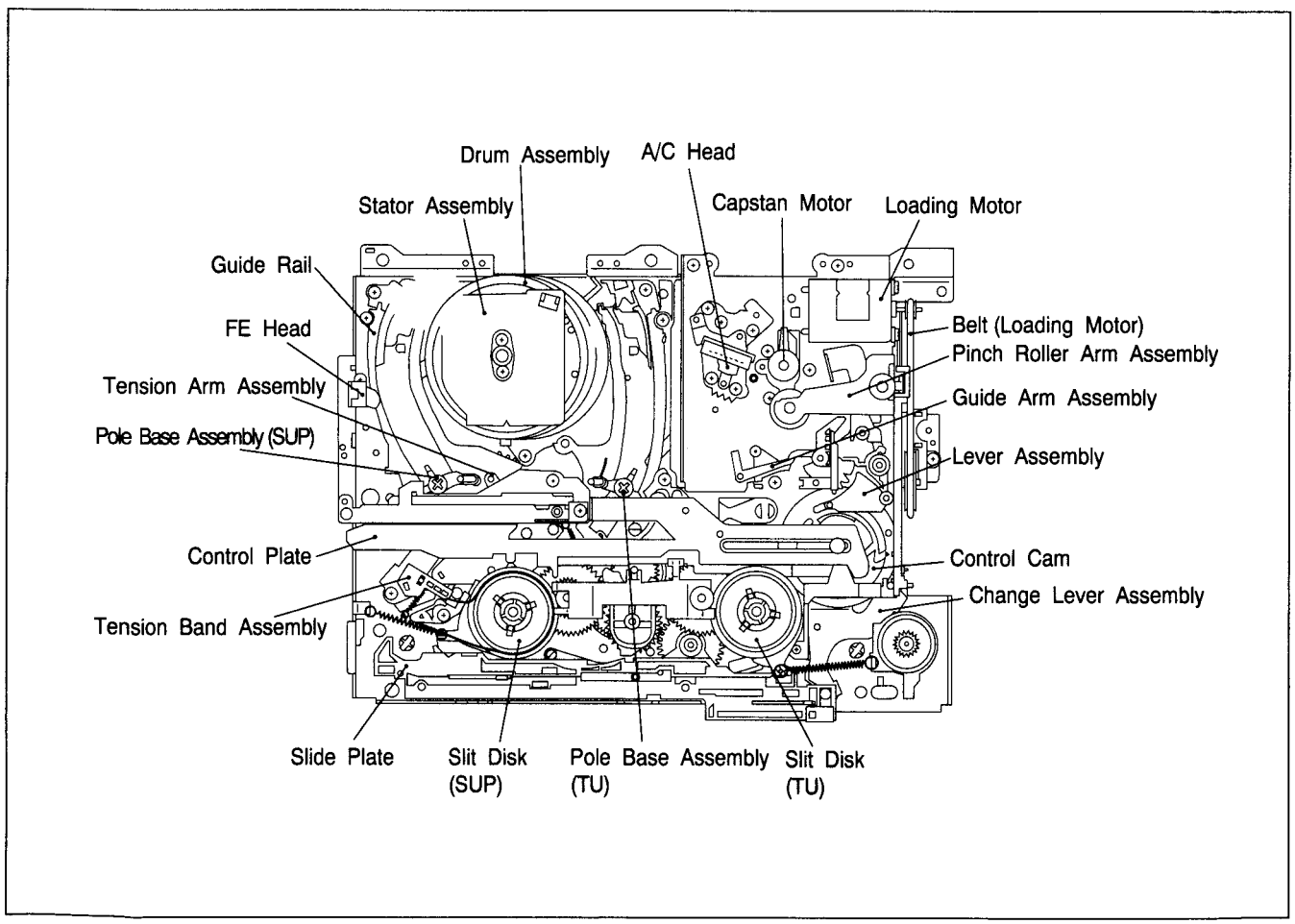


Fig. 2-2-1 Top view of main deck

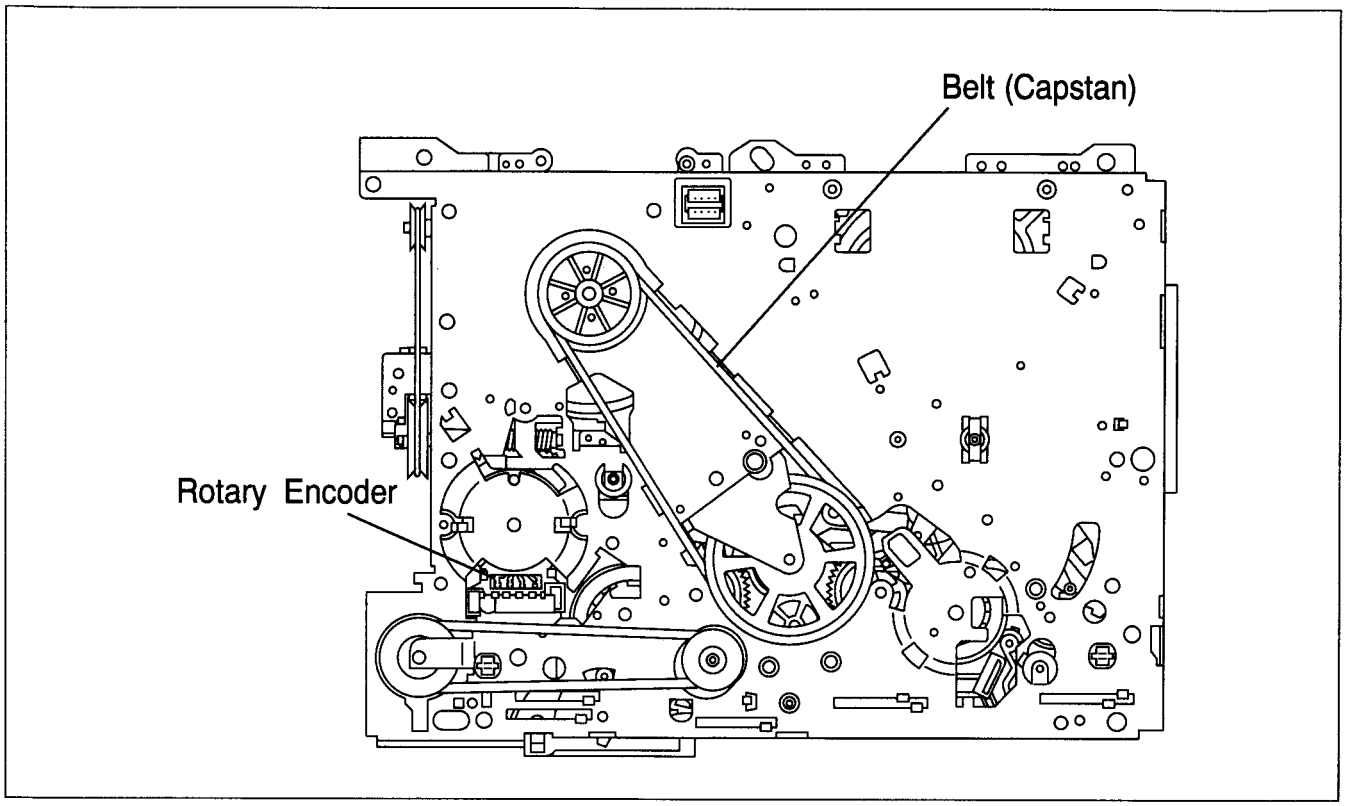


Fig. 2-2-2 Bottom view of main deck

2.2.1 Cleaning

Periodic cleaning of the tape transport system is desirable,but usually not feasible in practice.Therefore,perform cleaning when a set is brought in for repairs or maintenance. Contamination of the video heads,tape guides and brush can detract from playback picture quality and in extreme cases,even damage the tape.For cleaning,use a finemesh cotton cloth(about the texture of a white dress-shirt) moistened in alcohol. It is recommended to also clean thetape tension posts and capstan.

- To clean the video heads,press the moistened cloth gently against the upper drum with fingertip and turn the drum by hand.
- Do not use a vertical stroke,as this may damage the heads.

2.2.2 Lubrication

Oil and grease do not normally require periodic replenishing. Apply only when replacing lubricated parts(also clean and replace lubrication of mating parts if soiled). For parts and points to apply oil and grease, refer to the exploded views of the mechanism assembly. Before oiling,clean with alcohol. Apply one or two drops of oil. Avoid excess oil.

1. Table 2-2-1 indicates the oil and grease used in this set. Use these or recommended locally available equivalents.

Category	Part No.
Oil	COSMO-HV56
Grease	KYODO-SH-P

Table 2-2-1

2. Grease is not required for a replacement cassette housing assembly,as this has been applied at the factory.

NOTE : *Stir grease that has been stored for an extended period.*

2.3 INSPECTION AND MAINTENANCE

This product employs rotary and moving parts which wear out in the course of usage.Periodic inspection, cleaning, lubrication and maintenance are therefore important for ensuring maximum performance. Worn parts must also be replaced as and when required.

2.3.1 Suggested servicing schedule for main components

The following table indicates the suggested period for such service measures as cleaning,lubrication and replacement. In practice, the indicated periods will vary widely according to environmental and usage conditions.However, the indicated components should be inspected when a set is brought for service and the maintenance work performed if necessary. Also note that rubber parts may deform in time,even if the set is not used.

System	Parts Name	Operation Hours	
		~1000H	~2000H
Tape transport	Upper drum assembly	★ ○	○
	A/C head	★ ○	★ ○
	Lower drum motor assembly	★	★ ○
	Pinch roller arm assembly	★	★
	Full erase head	★	★
	Tension arm assembly	★	★
	Guide arm assembly	★	★
Drive	Capstan motor		○
	Belt (Capstan)	○	○
	Belt (Loading motor)		○
	Loading motor		○
	Slit disk (supply, take-up)		○
	Clutch unit (supply, take-up)		○
	Worm gear assembly		○
	Control plate		○
	Slide plate		○
Other	Brush assembly	★ ○	★ ○
	Tension band assembly	○	○
	Rotary encoder		○

★ : Cleaning
○ : Inspection or Replacement if necessary

Table 2-3-1

2.4 DISASSEMBLY/ASSEMBLY PROCEDURE OF MECHANISM

2.4.1 Precaution before disassembling mechanism

This mechanism has an exclusive operation mode provided for disassembling and installation of the mechanism (MECHANISM ASSEMBLING MODE), and it is suggested to set the mechanism to this mode before disassembly and installation.The exclusive mechanism operation mode is not generally used and becomes available by manual setting only. Then this procedure starts with the condition that the cabinet parts,cassette housing assembly and PRE/REC board assembly have been removed.

2.4.2 How to set the exclusive mechanism operation mode (MECHANISM ASSEMBLING MODE)

(1) Turn the mode motor belt by hand.
(2) Confirm that the hole of the control cam are aligned to the deck hole as shown in Fig.2-4-1.

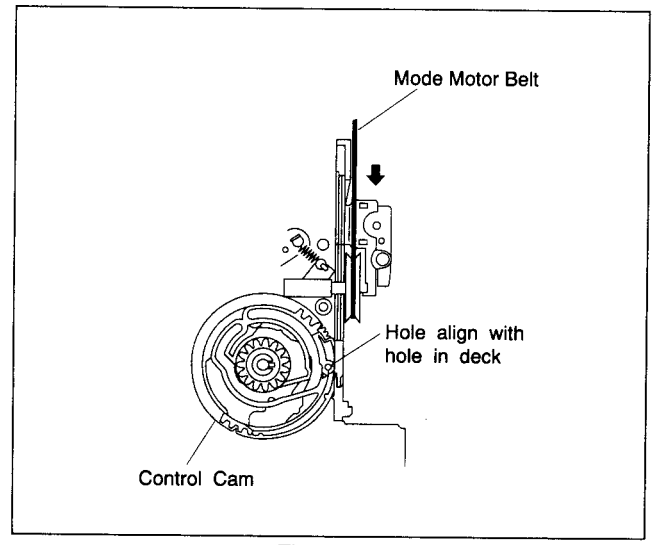


Fig. 2-4-1

2.5 MAIN PARTS REPLACEMENT OF MECHANISM

2.5.1 Pinch Roller Arm Assembly

(1) Remove the slit washer.
(2) Tilt up the pinch roller assembly in direction of arrow.

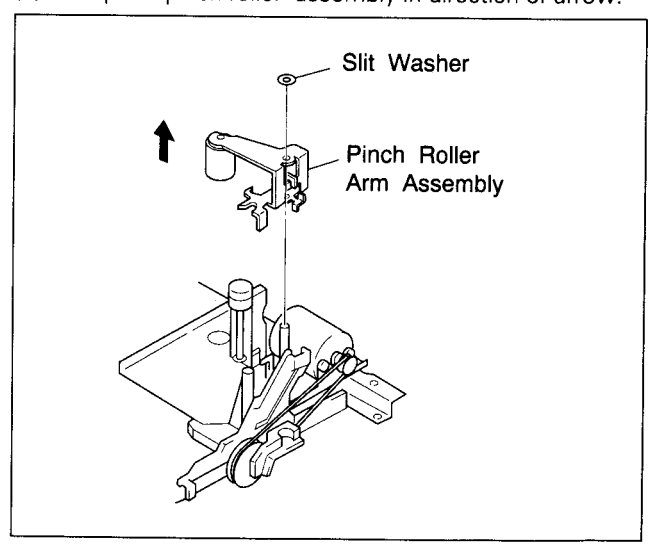


Fig.2-5-1

2.5.2 A/C Head

1. Removal

(1) Take out 2 screws (A).

(2) Remove the A/C head with head base.

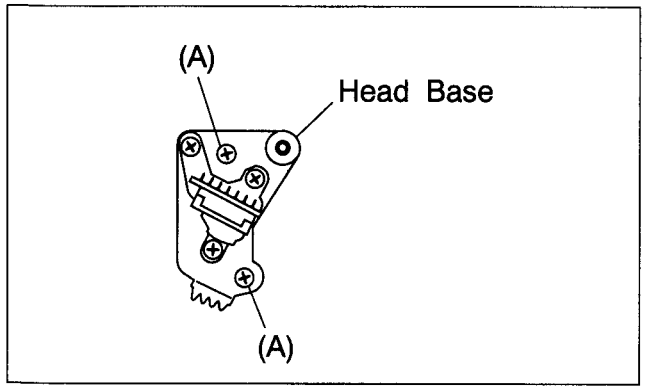


Fig.2-5-2

(3) When replacing the A/C head only,remove 3 screws (B), use care not to misplace the 3 springs.

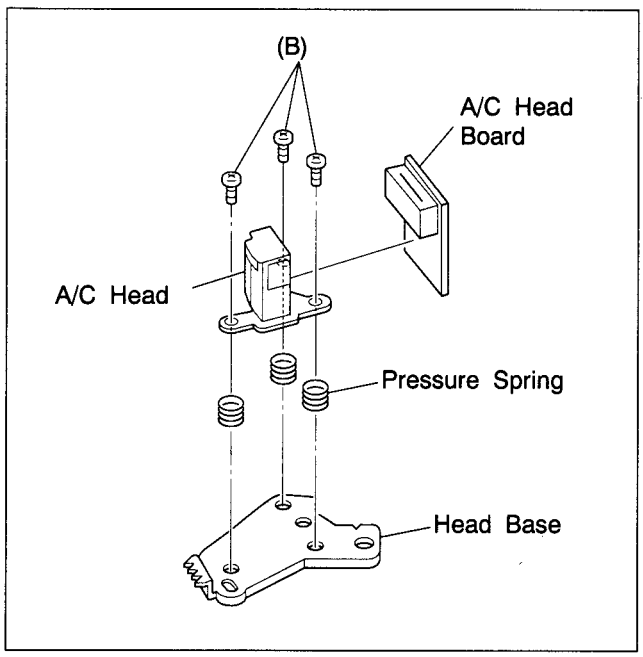


Fig.2-5-3

2. Installation

(1) Temporarily set A/C head height as indicated in Fig. 2-5-4.

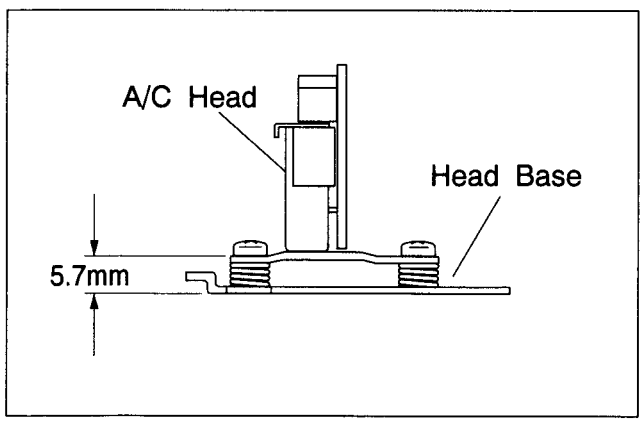


Fig.2-5-4

NOTES:

- *It is very important to correctly adjust the control pulse and audio signal in addition to the mechanical tape path.*
- *Perform interchangeability adjustments after electrical adjustments.*

2.5.3 Pinch Plate

1. Removal

(1) Disengage 2 claws, then remove the pinch plate.

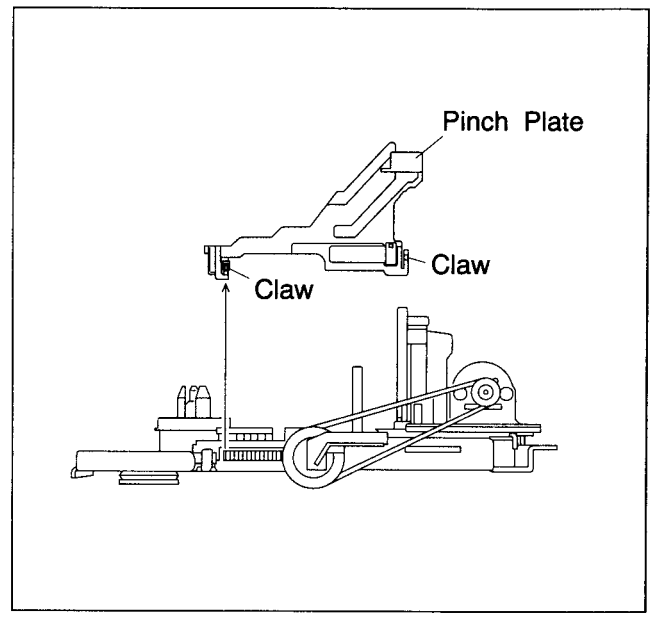


Fig.2-5-5

2. Installation

(1) When installing pinch plate,align rack of pinch plate and triangle mark of control cam as indicated in Fig.2-5-6.

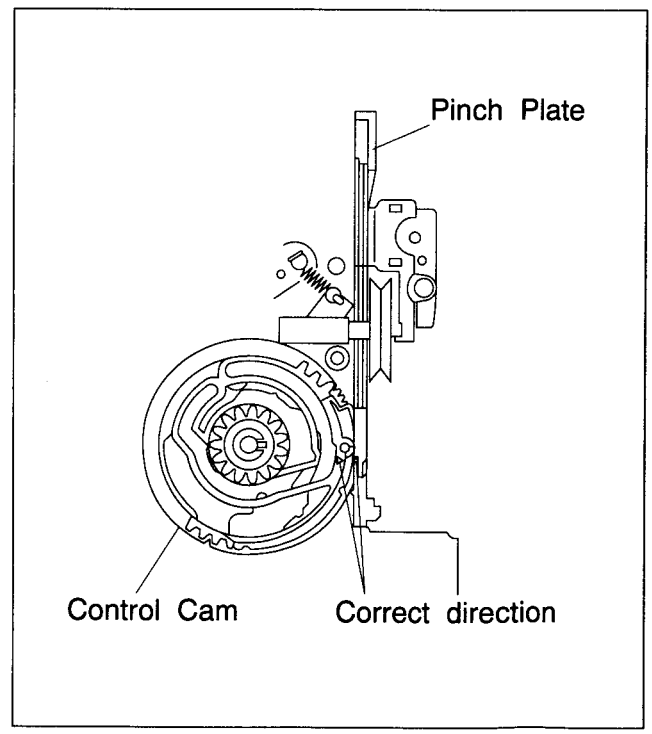


Fig. 2-5-6

2.5.4 Loading Motor

(1) Disengage the belt between loading motor and worm gear.
(2) Take out 2 screws (A) then remove the loading motor.

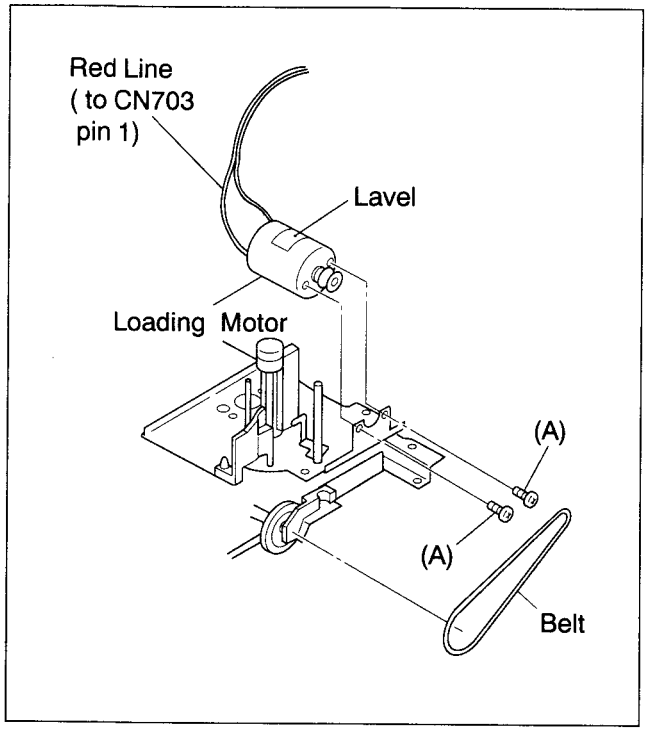


Fig.2-5-7

2.5.5 Lever Assembly,Sub Deck Assembly,Capstan Motor

(1) Take out 1 slit washer,then remove the lever assembly.
(2) Disengage the belt(capstan motor) from bottom of mechanism assembly first as indicated in Fig.2-5-10.
(3) Take out 3 screws (A) and remove the sub deck assembly as indicated in Fig.2-5-8.
(4) Take out 3 screws (B) and remove the capstan motor from the sub deck assembly as indicated in Fig.2-5-9.

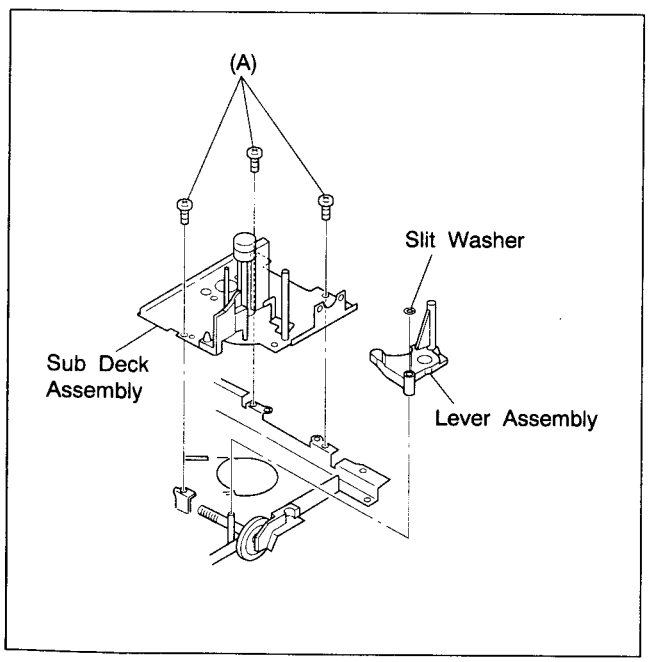


Fig.2-5-8

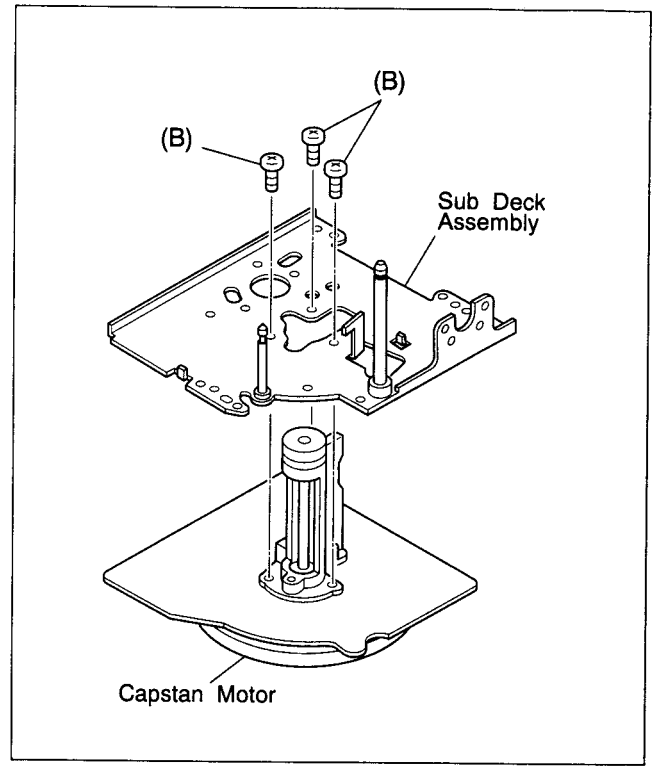


Fig.2-5-9

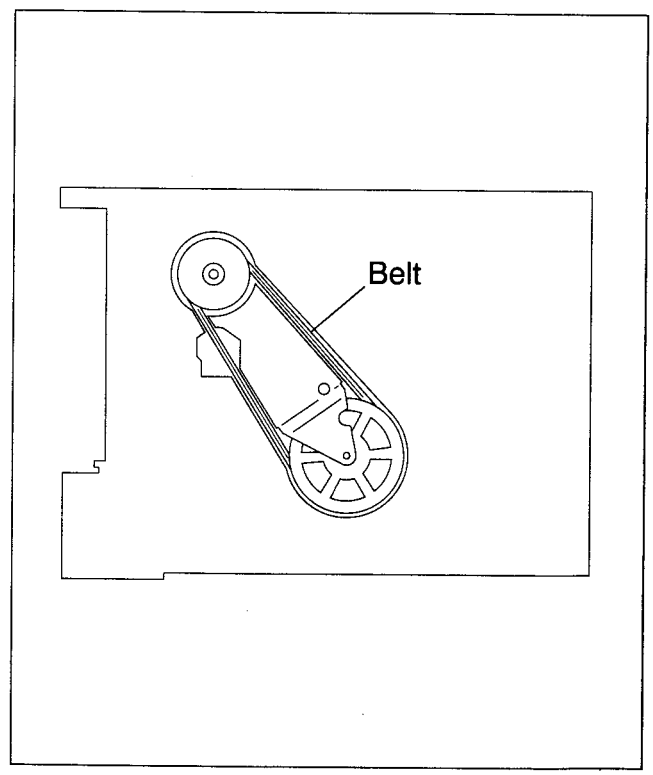


Fig.2-5-10

2.5.6 Control Bracket-1

(1) Take out 1 screw (A) and 1 screw (B).
(2) Remove the control bracket-1.

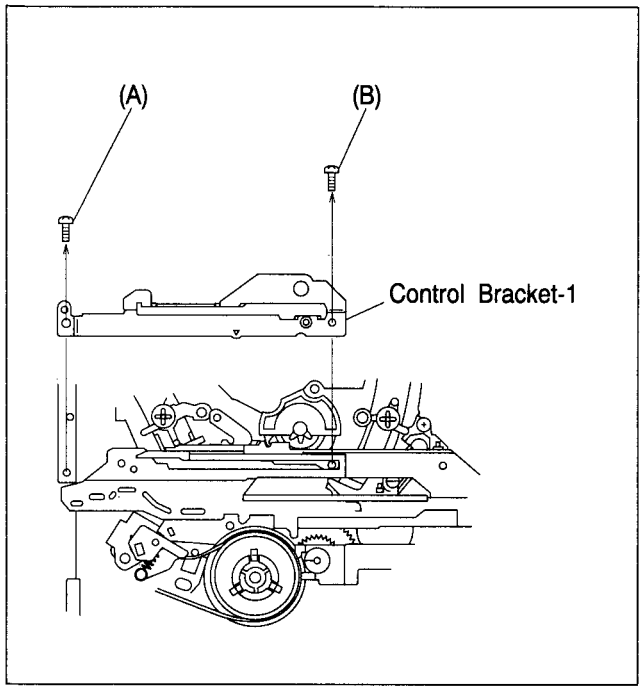
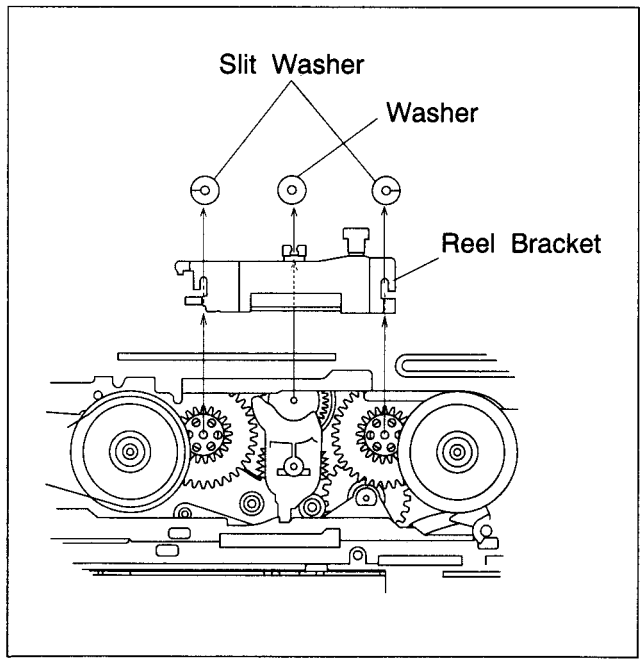


Fig.2-5-11

2.5.7 Reel Bracket,Slit disk (take-up),Control Bracket-2

(1) Take out 2 slit washers and 1 washer.
(2) Remove the reel bracket and slit disk(take-up).
(3) Take out 1 screw (A) and remove the control bracket-2.



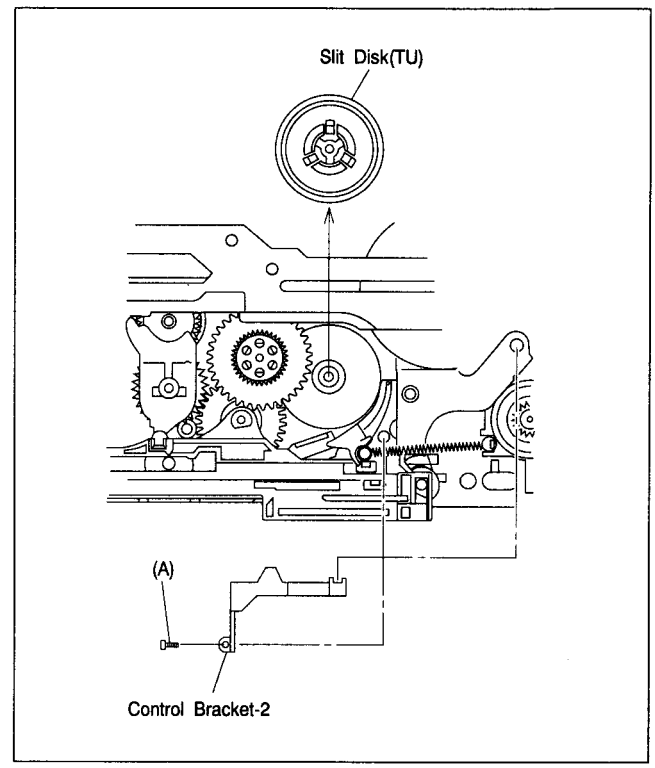


Fig.2-5-13

2.5.8 Control Plate

(1) Take out 1 slit washer.
(2) Disengage 2 claws and remove the control plate.

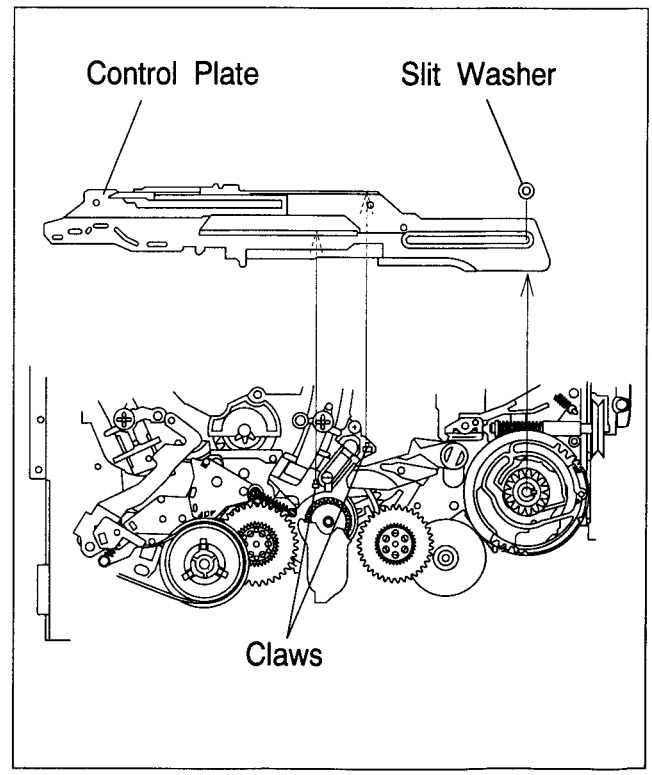


Fig.2-5-14

2.5.9 Sub Brake(take-up),Control Cam

(1) Disengage 1 spring (a) and 1 claw then remove the sub brake (take-up).
(2) Disengage 1 claw and remove the control cam.

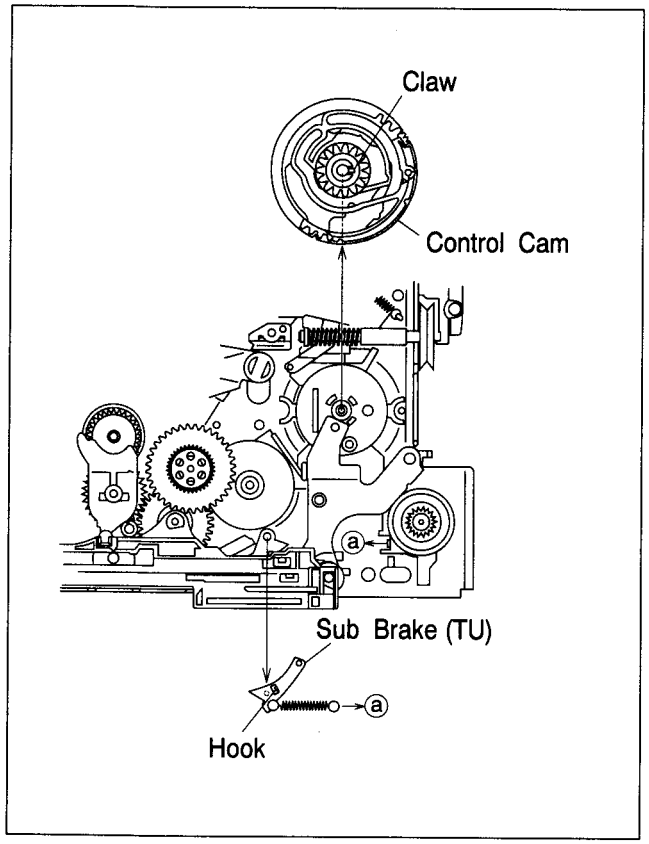


Fig.2-5-15

2.5.10 Slide Plate

(1) Disengage 7 claws from bottom of the mechanism assembly and remove the slide plate.

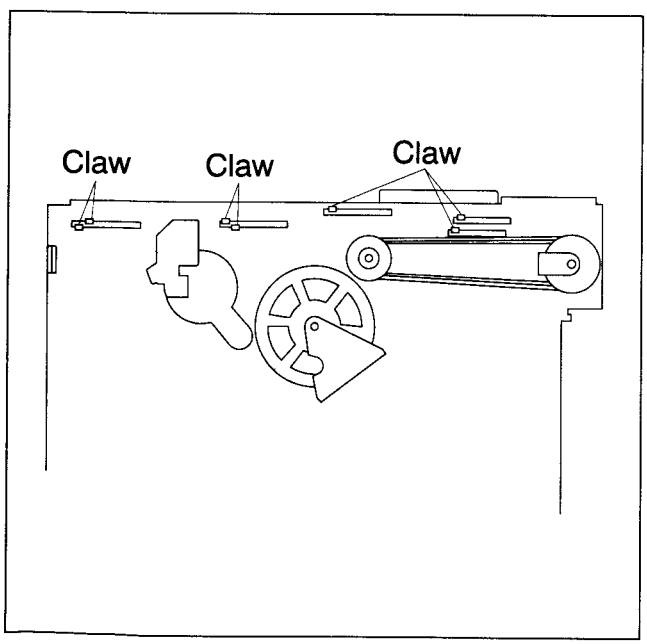


Fig. 2-5-16

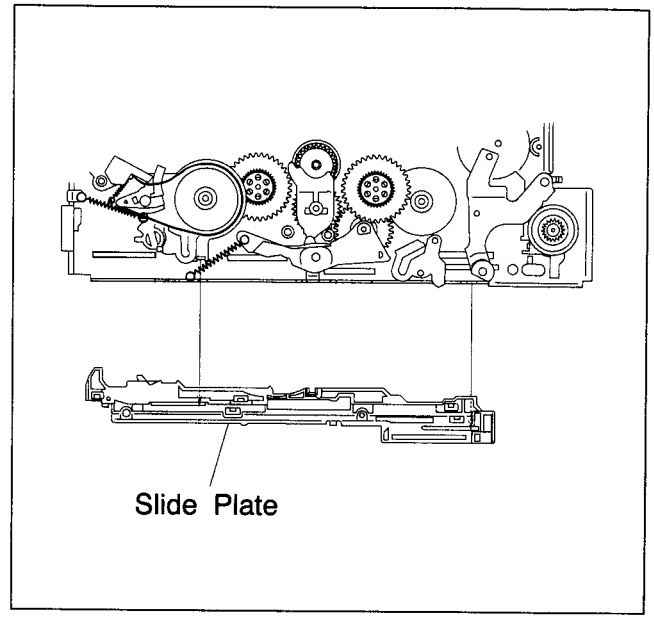


Fig. 2-5-17

2.5.11 Change Lever,Rotary Encoder

(1) Remove the change lever.
(2) Disengage 2 claws and remove the rotary encoder.

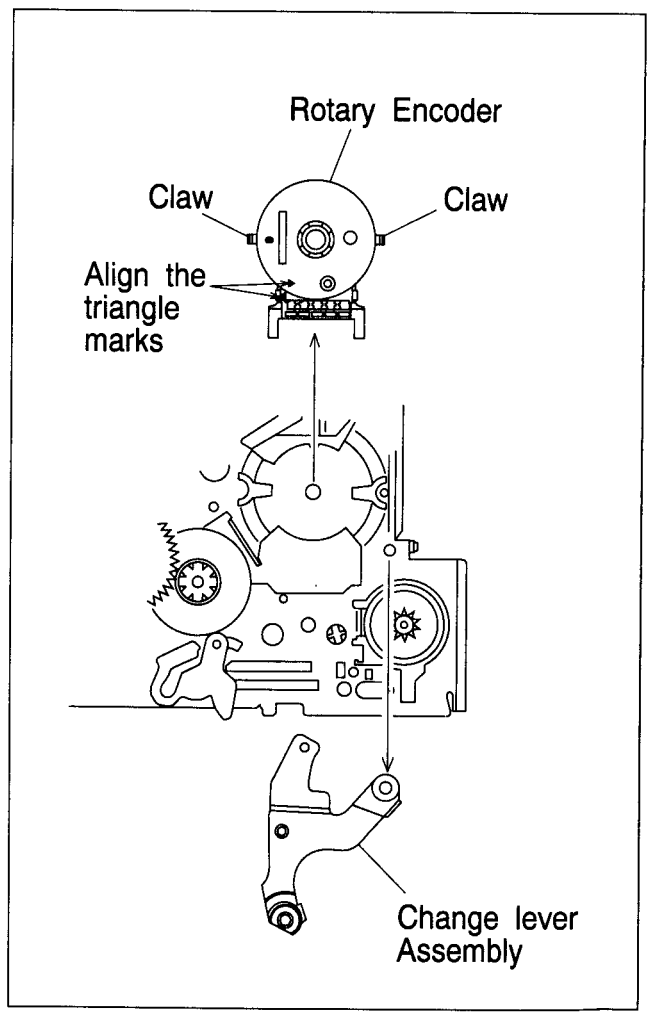


Fig. 2-5-18

2.5.12 Sub Brake (supply),Tension Band Assembly,Tension Arm Assembly,Take-up Lever Assembly,Slit Disk(supply)

(1) Disengage 1 spring (a).
(2) Disengage 1 claw and remove the sub brake (supply).
(3) Take out 1 screw (A),spring (c) and slit washer.
(4) Remove the tension arm assembly with tension band assembly.
(5) Disengage 1 spring (b) and remove the take-up lever assembly.
(6) Remove the slit disk(supply).

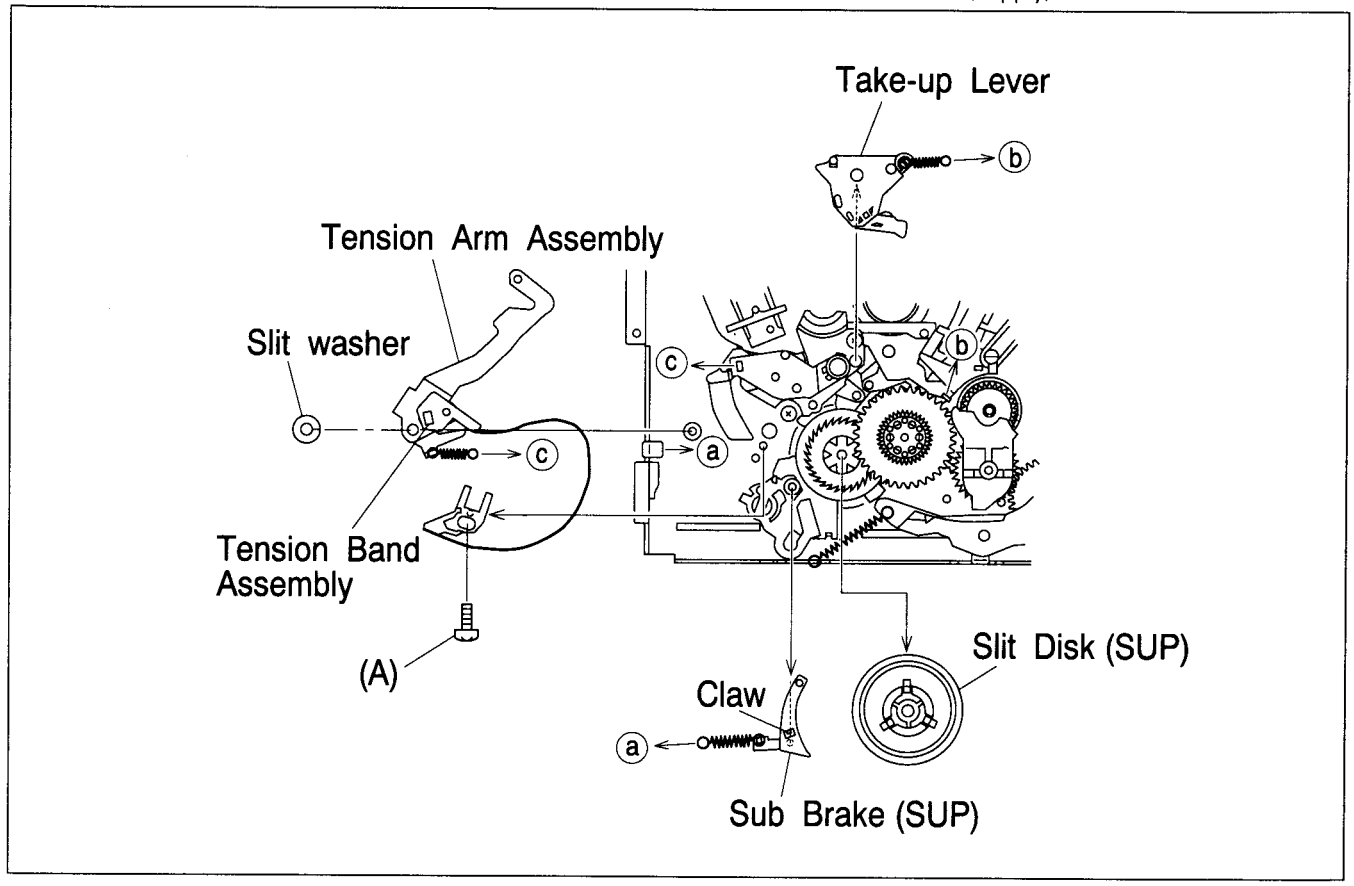


Fig. 2-5-19

2.5.13 Take-up Head,Tension Arm Lever

(1) Remove the take-up head and tension arm lever.

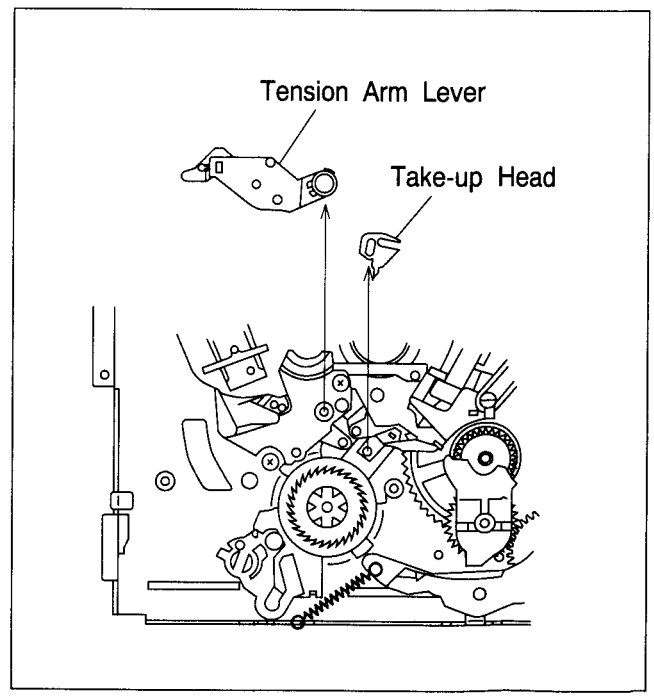


Fig.2-5-20

2.5.14 Guide Rail

(1) Take out 5 screws (A) and 1 screw (B).
(2) Disengage 4 claws and remove the guide rail.

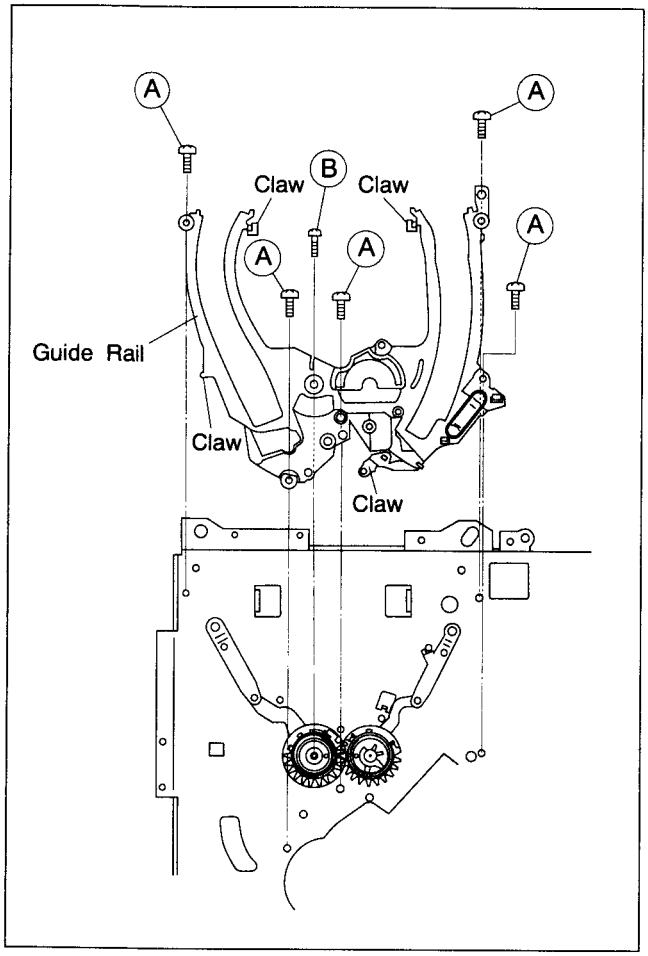


Fig. 2-5-21

2.5.15 Stator Assembly

(1) Take out 2 screws (A).
(2) Raise the stator assembly in the direction indicated by the arrow to remove it.
(3) Remove the flat cable.
(4) To reinstall,first secure the flat cable,then insert 2 screws (A).
(5) After reinstalling, be sure to perform PB switching point adjustment(See SECTION 3 ELECTRICAL ADJUSTMENT).

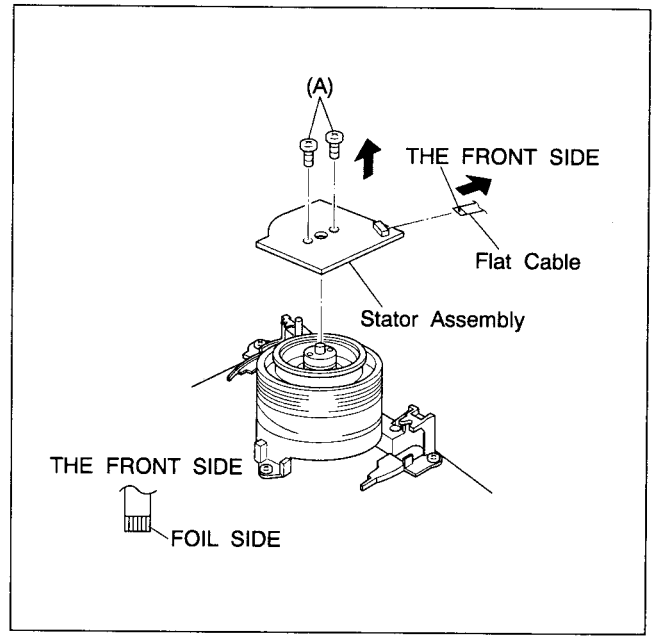


Fig. 2-5-22

NOTE : *When refitting the connector, check that the flat wire is inserted correctly.*

2.5.16 Rotor Assembly

(1) Remove the stator assembly.
(2) Take out 2 screws (B) and remove the rotor assembly.

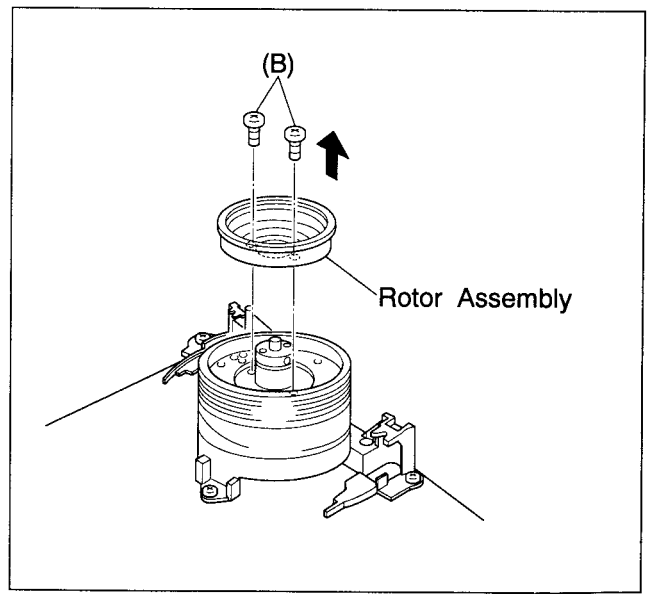


Fig.2-5-23

(3) Align the upper dum assembly and rotor assembly phase as indicated in Fig.2-5-22.
(4) Overlap holes (a) of the upper drum assembly with holes (b) of the rotor assembly (align holes in 3 locations) and secure with 2 screws (B) as indicated in Fig.2-5-21.

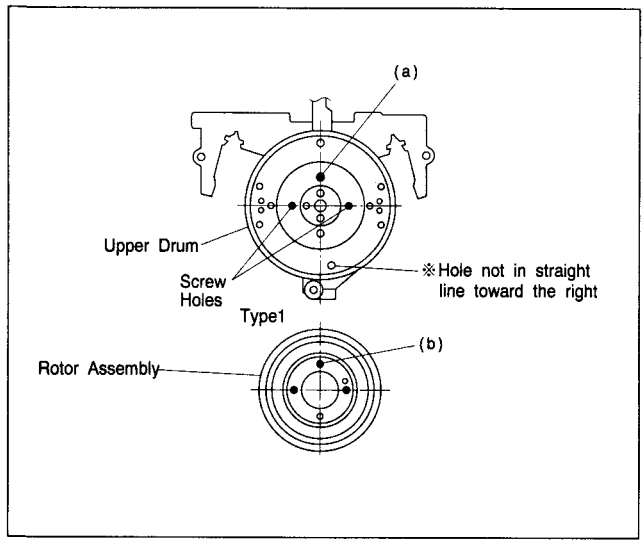


Fig. 2-5-24

2.5.17 Upper Drum Assembly

1. Removal

(1) Remove the stator assembly and rotor assembly.
(2) Use a 1.5 mm hexagonal wrench to loosen the collar assembly screw and remove the collar assembly.
(3) Remove the upper drum assembly and use tweezers to remove the Washer.

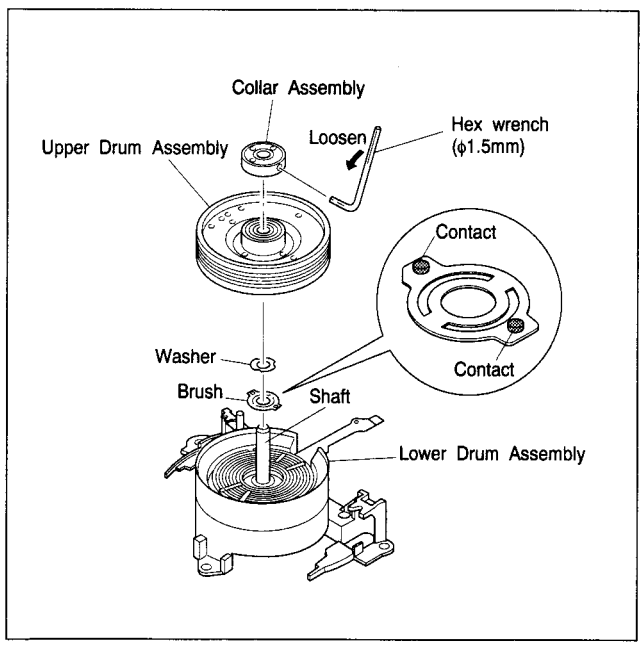


Fig. 2-5-25

NOTE : *When replacing the upper drum assembly, it is recommended to replace the brush.*

2. Installation

(1) Use an air brush to clean the lower drum assembly and the coil section of the new upper drum assembly.
(2) Set a new washer on the drum shaft as indicated in Fig.2-5-25.

NOTE : *Be sure to use the new washer when replacing the upper drum assembly.*

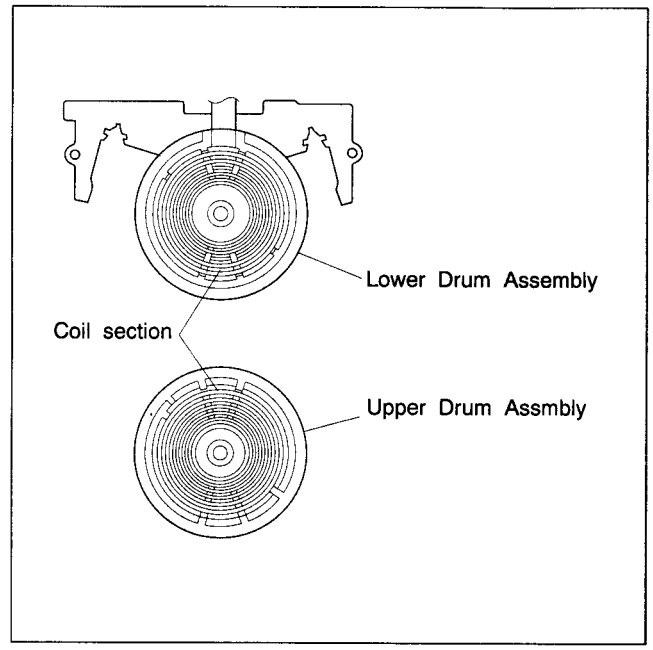


Fig.2-5-26

(3) Note the top and bottom of the collar assembly and determine the position as indicated in Fig.2-5-25.

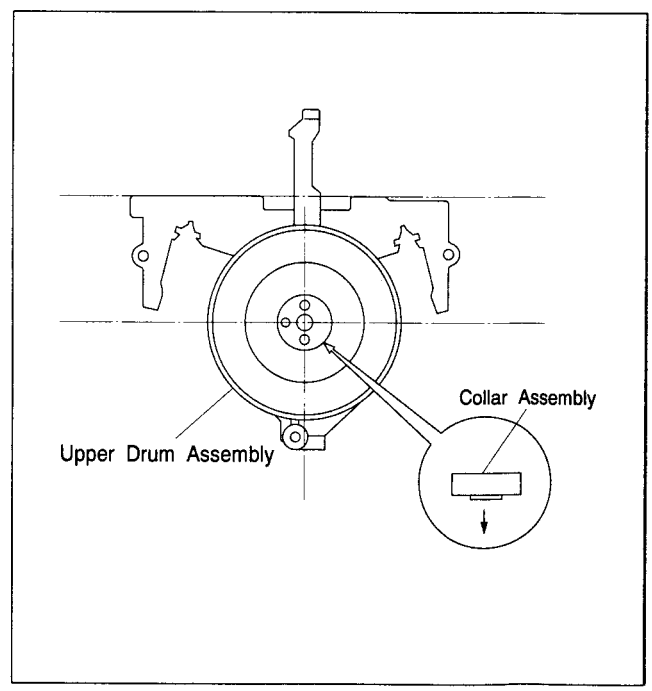


Fig.2-5-27

(4) While pressing the collar assembly evenly from above with your fingertips,secure the hexagonal screw.

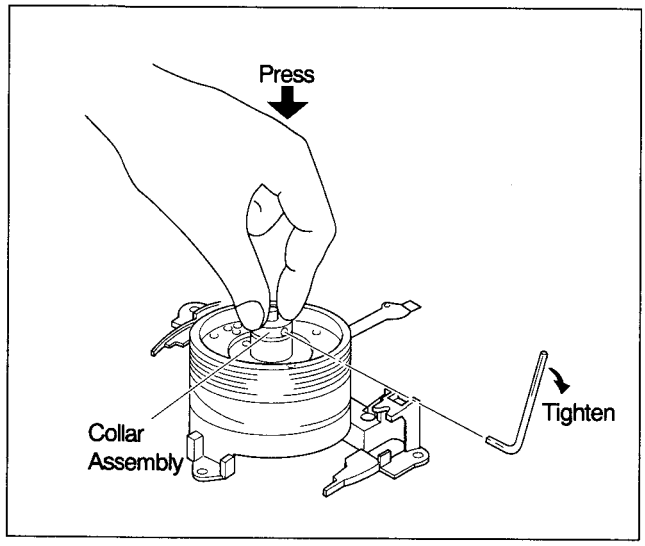


Fig.2-5-28

(5) After installing,gently turn the upper drum by hand and confirm normal rotation.
(6) Install the rotor assembly and stator assembly.
(7) Clean the upper and lower drum assemblies and perform the following adjustments;
- PB switching point adjustment
- Slow tracking preset adjustment
- Interchangeability adjustment (be sure to check LP mode)

2.6 CHECKUP AND ADJUSTMENT OF MECHANISM PHASE

2.6.1 Precaution

The rotary encoder and syscon circuit are closely interrelated.Therefore,the rotary encoder and control cam conection determines the operations of mechanical parts such as plates,gears,brakes,etc.Correct positioning of these parts is essential for smooth tape loading and mechanical operations.

2.6.2 Loadidg Arm Assemby (supply,take-up)

(1) Install the supply loading arm assembly and the take-up loading arm assembly so that their positioning markings on the respective gear face each other and the holes of their arms correspond to the holes on the main deck assembly respectively.
(2) After setting the guide rails,engage the pole base assemblies with the tip of the loading arms respectively. Then,enter the mechanism into the unloading mode to return the pole base assemblies to the front position.
(3) Reassemble the peripheral parts of the guide rail to its original position.

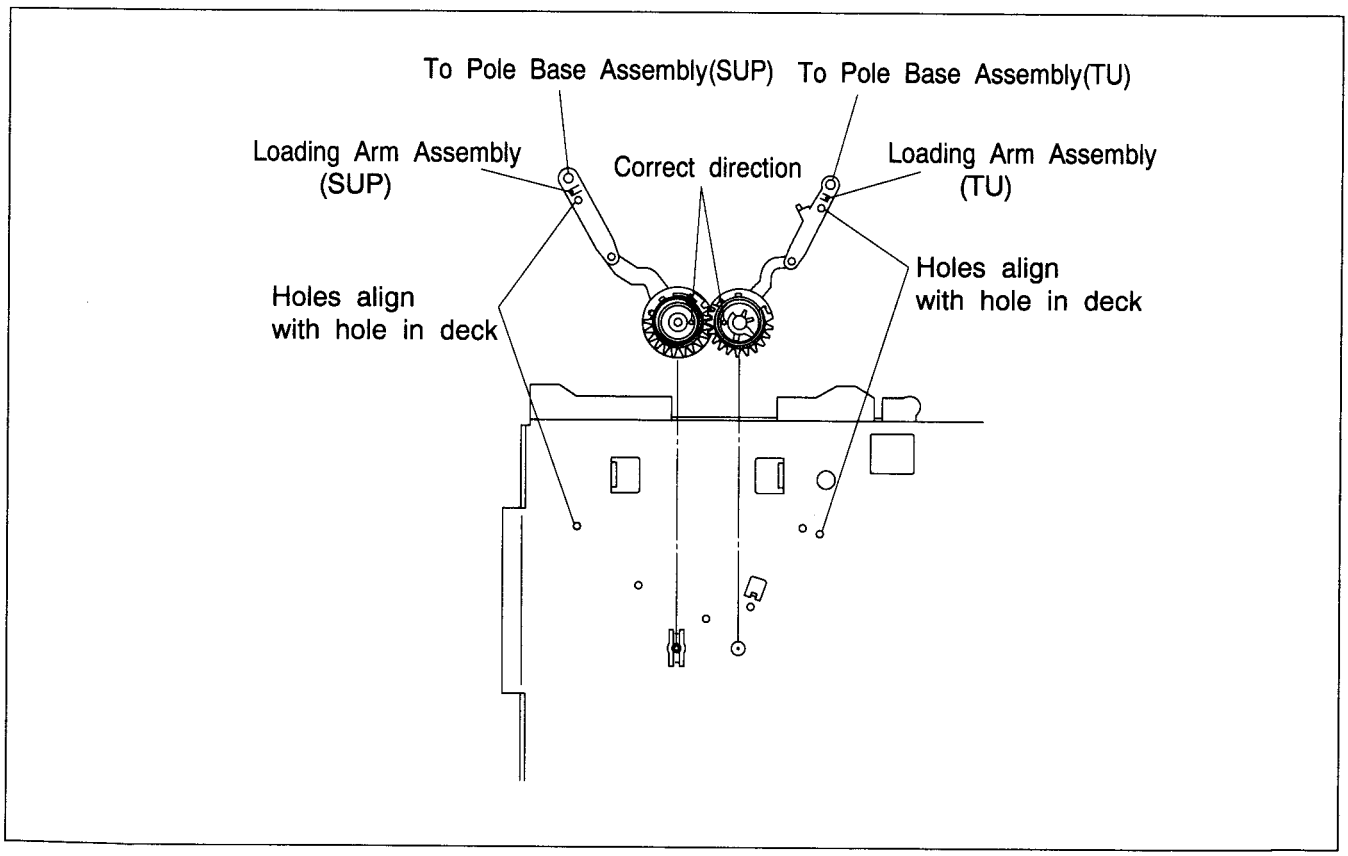


Fig. 2-6-1

2.6.3 Rotary Encoder,Change Lever,Control Cam

(1) When reinstalling the rotary encoder,adjust its position so as to fit the triangle marks each other and push it deep untill it is locked by the pawls.
(2) When reinstalling the change lever,set it so as to make its positioning hole correspond to the hole of the main deck assembly.
(3) When re-engaging the control cam,lower the capstan brake assembly while setting it so as to make its positioning hole correspond to the hole of the main deck assembly.

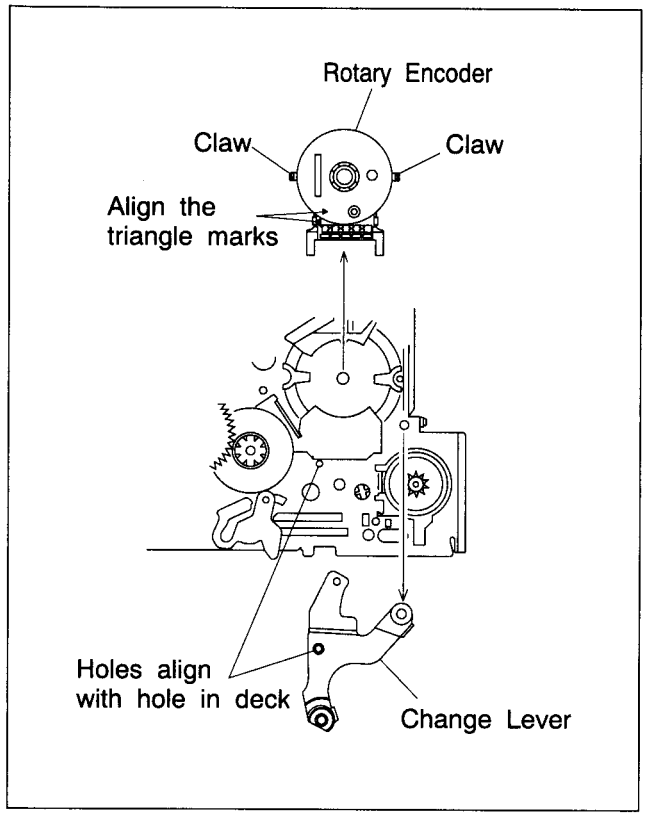


Fig. 2-6-2

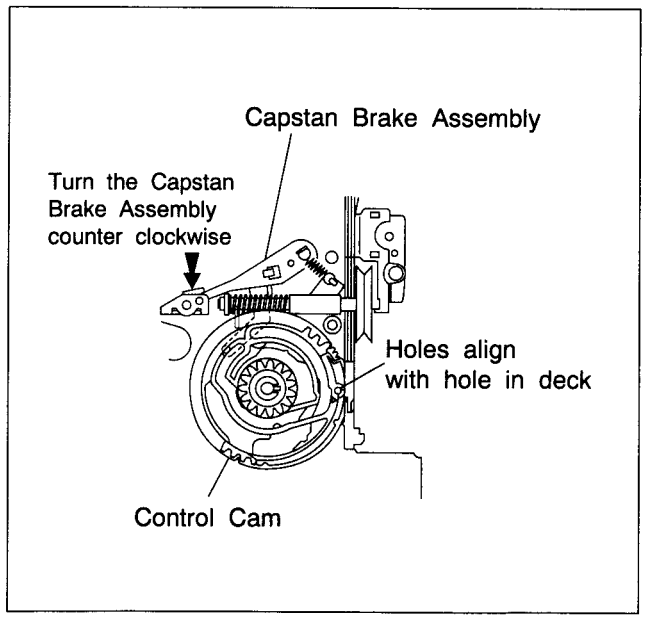


Fig. 2-6-3

2.6.4 Slide Plate

(1) Lower both the main brake assemblies (supply and take-up) untill they touch the edge of the main deck assembly while reinstalling the slide plate so as to make the respective positioning holes of the main brake assemblies correspond to the holes on the main deck assembly.

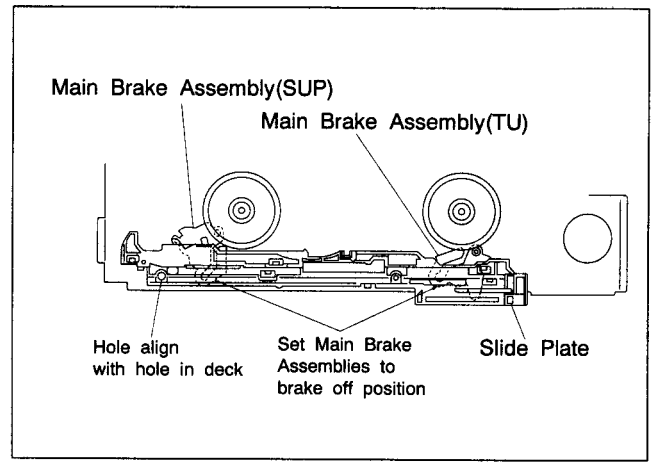


Fig.2-6-4

2.6.5 Control Plate

(1) Reinstall the control plate so as to set the two positioning holes of it on the holes on the main deck assembly respectively and to set the positioning hole of the take-up lever on the hole of the main deck at the same time. When adjusting the hole position of the take-up lever,use a pair of tweezers to hold and move it since it is pulled by a tension spring.
(2) After reinstalling the control plate,fix it with the slit washer,control bracket-1 and -2.

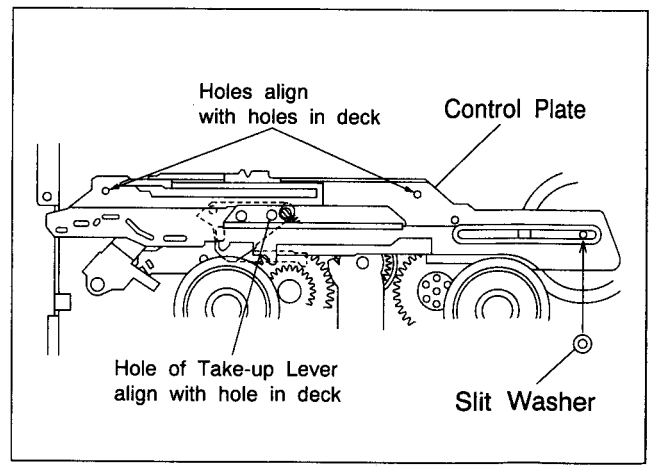


Fig. 2-6-5

2.7 TAPE INTERCHANGEABILITY ADJUSTMENT

NOTE : • *This adjustment is extremely important. However, it is normally not required during routine service. Perform only after replacing major components(A/C head,upper/lower drum assembly,pole base assembly,etc).*

• *Before using costly alignment tape,use a spare tape and confirm correct operation of the tape transport.*

2.7.1 Tape pattern

(1) Connect the oscilloscope to TP106(PB FM) on the MAIN board.Use TP111(D.FF) on the MAIN board as a trigger.

(2) Playback the SP stairstep portion of the alignment tape [MHPE].Confirm that the FM waveform appears as indicated in Fig.2-7-1.

(3) Set the manual tracking position by pressing the ▮/▮▮ button on the remote controller or TV PROG "-" and "+" buttons simultaneously.

(4) Operate the tracking adjustment (press the TV PROG buttons during playback) and set for maximum playback FM waveform.

(5) By operating the TV PROG button,vary the FM waveform from maximum to minimum and vice versa to confirm that the waveform varies nearly in a flat shape as shown in Fig.2-7-1.

(6) When the FM waveform does not remain flat during this process,first slightly loosen the set screw located at the bottom of the guide rollers.Using the guide roller adjustment tool (Roller driver) ,adjust the supply and take-up guide rollers (refer to Fig.2-7-2) to obtain the correct waveform as indicated in Fig.2-7-3.

(7) By pressing the TV PROG buttons several times,vary the FM waveform output from maximum to minimum (and vice versa) gradually,and confirm that the variation proceeds in flat shape, as shown in Fig.2-7-3.

(8) Next playback the LP stairstep portion of the alignment tape [MHPE-L] and adjust the tracking control from maximum to minimum the FM waveform,confirm that FM waveform variation is always flat.

(9) Record the signal and play it back in both of the SP and LP mode,confirm that the FM waveform is flat in both mode.

(10) After adjustments,tighten the set screw of the guide rollers.

(11) Confirm that the tape wrinking does not occur at the roller upper or lower limits as indicated in Fig.2-7-4.

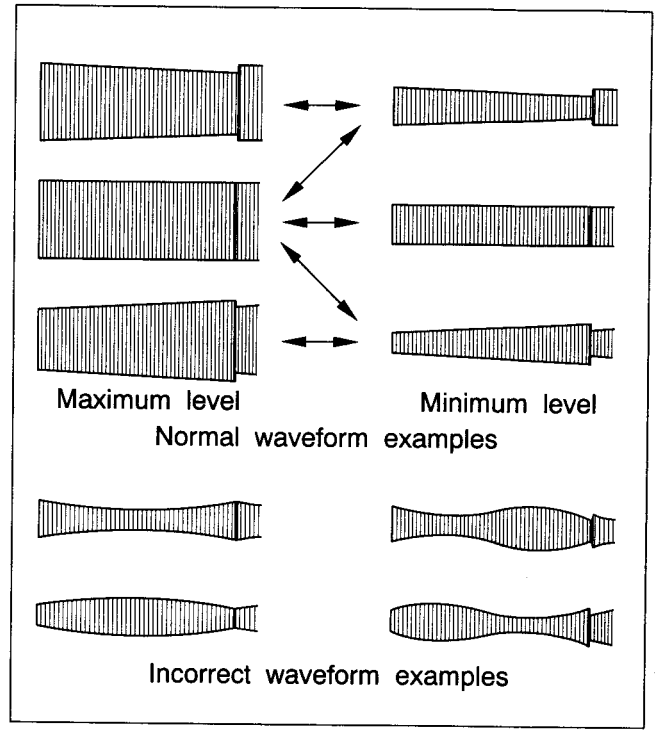


Fig. 2-7-1

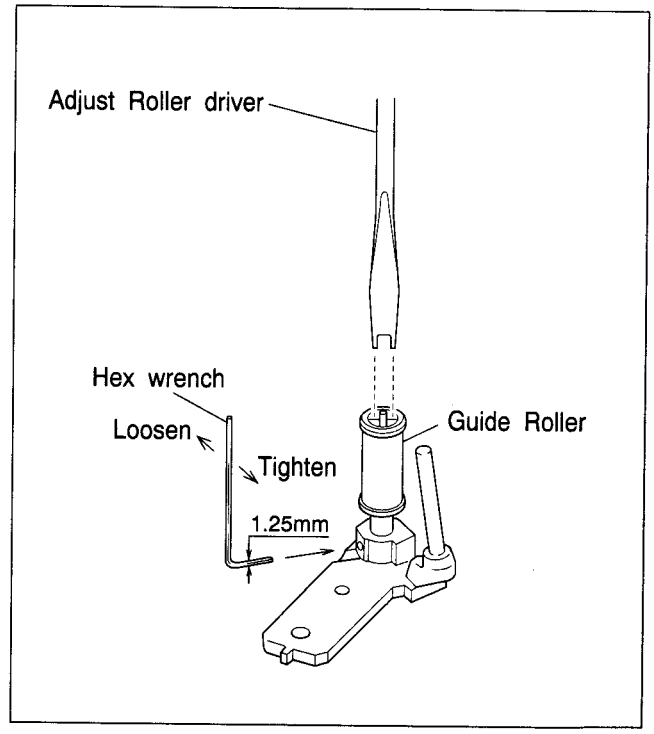


Fig. 2-7-2

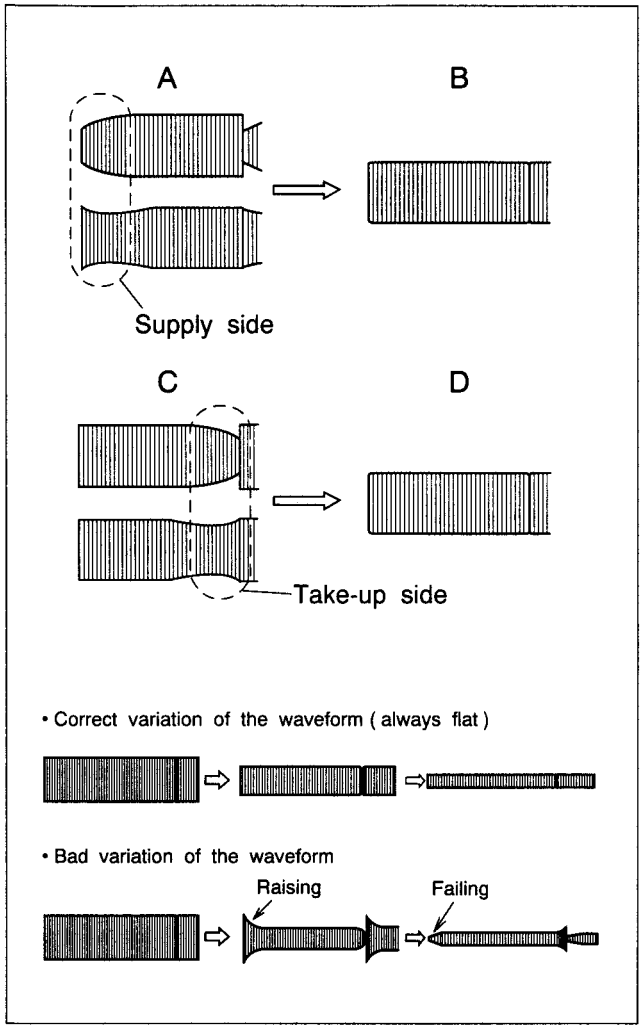


Fig. 2-7-3

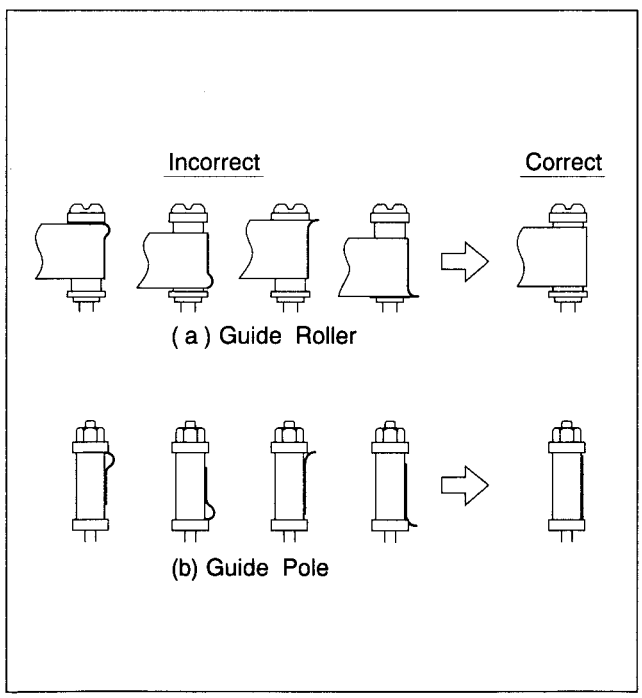


Fig. 2-7-4

2.7.2 A/C head height & azimuth

NOTE : • *Temporarily set A/C head height as indicated in Fig. 2-5-4.*
• *Use spare tape to check the transport and confirm the tape is not scratched or damaged.*

1. Tilt

(1) Use spare tape and set for playback.
(2) Turn screw (3) clockwise to where the tape curls just slightly at the TU guide pole bottom flange as shown in Fig.2-7-5.
(3) Then slowly turn screw (3) counterclockwise to where the curling ceases.

2. Height

(1) Connect CH-1 of a dual trace oscilloscope to Audio Out.
(2) Connect CH-2 to TP1101(CTL PULSE) of the Main board assembly and use the ALT mode.
(3) Playback the SP stairstep portion of the alignment tape [MHPE].
(4) Adjust screws (1),(2) and (3) for maximum audio output and control pulse level.

3. Azimuth

(1) Connect the oscilloscope to Audio Out.
(2) Playback the SP stairstep portion of the alignment tape [MHPE].
(3) Adjust screw (2) so that the audio output is both maximum and with minimum fluctuation.

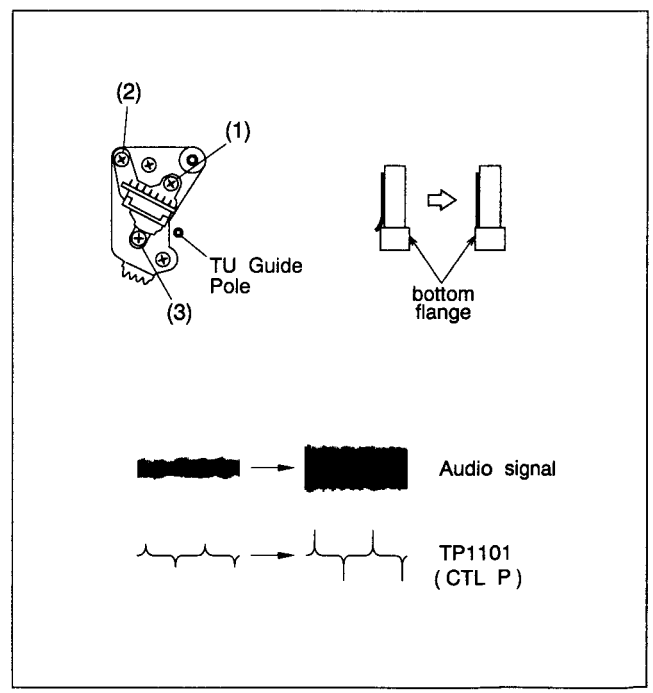


Fig. 2-7-5

2.7.3 A/C head phase(X-value)

(1) Connect the oscilloscope to TP106(PB FM) on the MAIN board.Use TP111(D.FF) on the MAIN board as a trigger.
(2) Playback the SP stairstep portion of the alignment tape [MHPE].
(3) Set the neutral manual tracking position by pressing the ///// button on the remote controller or TV PROG "-" and "+" buttons simultaneously.
(4) If adjustment is required,slightly loosen screws (4) and (5). Set A/C head positioning tool on the A/C head adjusting boss as indicated in Fig.2-7-6.
(5) Turn the tool first to position the A/C head fully toward the capstan. Then gradually return it toward the drum and stop at the position of maximum FM waveform output level as shown in Fig.2-7-7.
(6) Tighten screw (5). Remove the tool and tighten screw (4).
(7) Eject the SP alighnment tape [MHPE] and then re-insert the LP alignment tape [MHPE-L].
(8) Playback the LP stairstep portion of the alignment tape [MHPE-L].
(9) Set the neutral manual tracking position by pressing the ///// button on the remote controller or TV PROG "-" and "+" buttons simultaneously.
(10) Confirm maximum playback FM waveform output level as shown in Fig.2-7-7.
(11) If not maximum,slightly loosen the screws (4) and (5). Use the tool and adjust the head position for the nearest maximum point. Then tighten screws (4) and (5).

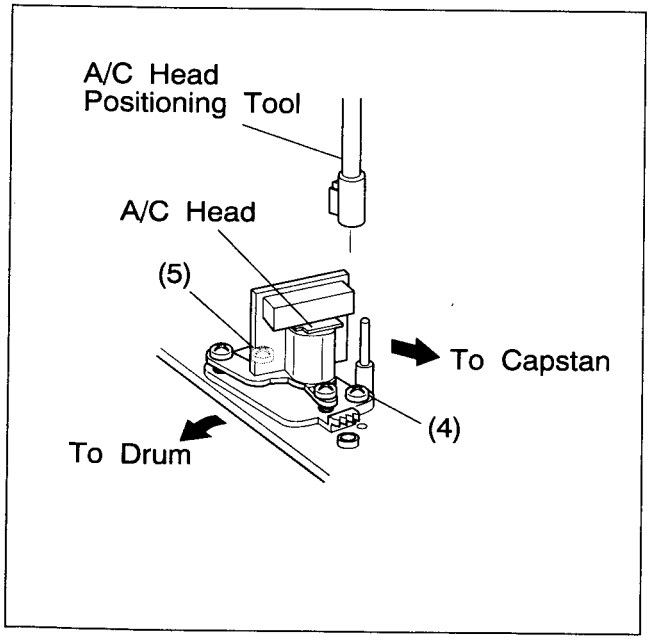


Fig. 2-7-6

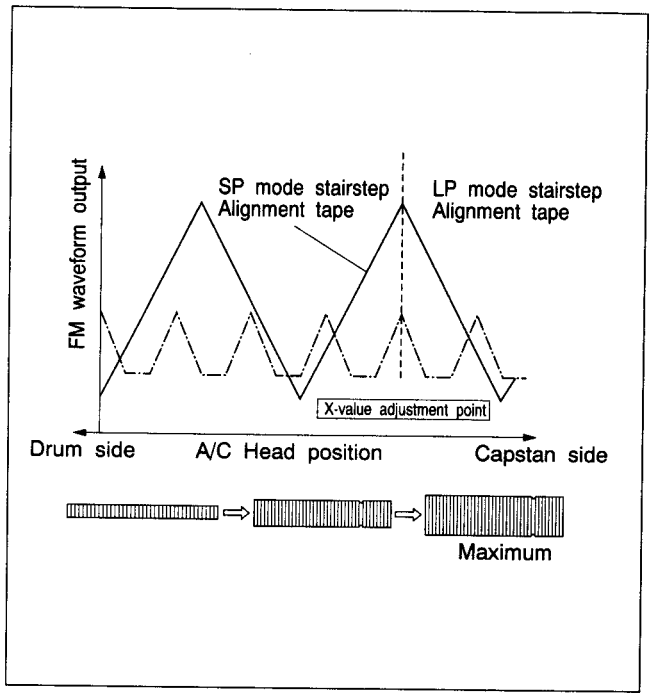


Fig. 2-7-7

2.7.4 LP mode auto tracking

NOTE : *Set VCR to the mode A by remote controller.*

(1) Connect the oscilloscope to TP106(PB FM) on the MAIN Board. Use TP111(D.FF) on the MAIN board as a trigger.
(2) Playback the LP stairstep portion of the alignment tape [MHPE-L].
(3) Confirm the FM waveform of the oscilloscope screen until auto tracking action is over.
(4) Twice press button "D" of the presetting unit [PTU94008].
(5) If the alignment tape ejects automatically,repeat the A/C head phase adjustment (X-value).

2.7.5 Tension pole position

(1) Set for playback mode using MECHANISM SERVICE MODE(See SECTION 1 DISASSEMBLY).
(2) Slightly loosen the screw (A) .
(3) Turn the adjust pin so that the tension arm assembly does not touch ϕ2.5 pole on the outside.
(4) Tighten the screw (A).
(5) After adjustment,use the back tension cassette gauge and set for the playback mode.
(6) Confirm reading of 29 to 46 g•cm.

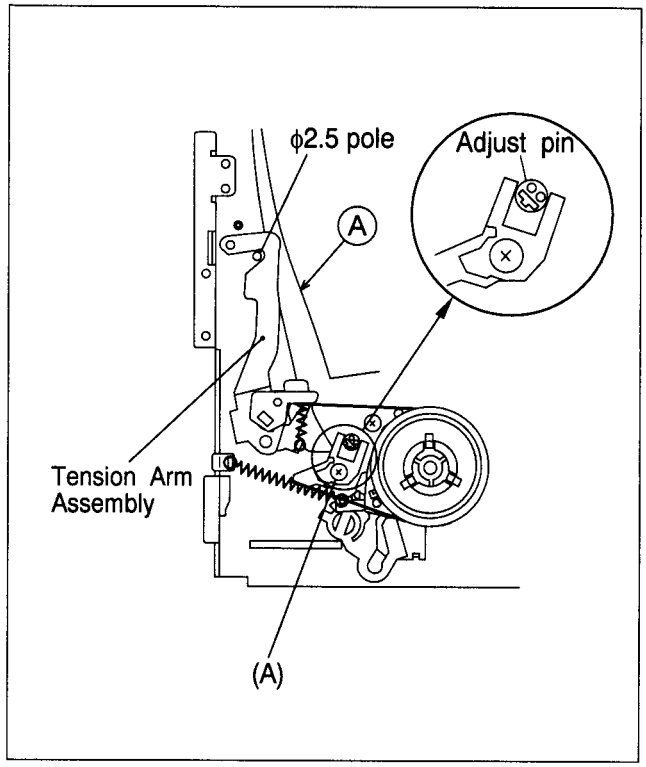


Fig. 2-7-8

2.7.6 Take-up torque

(1) Use the back tension cassette gauge and set for the playback mode.
(2) Confirm reading of 60 to 100 g•cm.

SECTION 3
ELECTRICAL ADJUSTMENT

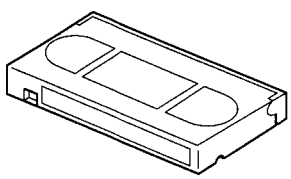
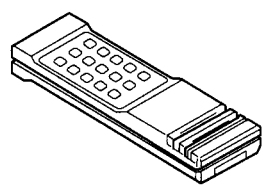
3.1 PRECAUTION

Electrical adjustment are required after replacing circuit components and certain mechanical parts. It is important to perform these adjustments only after all repairs and replacements have been completed. Also do not attempt these adjustments unless the proper equipments is available.

3.1.1 Required test equipment

① Colour television or monitor
② Oscilloscope: wide-band,dual-trace,triggered delayed sweep
③ Frequency counter
④ Digital voltmeter
⑤ Signal generator: RF/IF sweep/maker
⑥ Signal generator: PAL colour bar, stairstep
⑦ Recording tape
⑧ Numeric remote controller(provided)

3.1.2 Required adjustment tools

Alignment tape (SP,stairstep) MHPE	Presetting unit PTU940008
	

3.1.3 Colour bar signal,colour bar pattern

● Colour bar signal

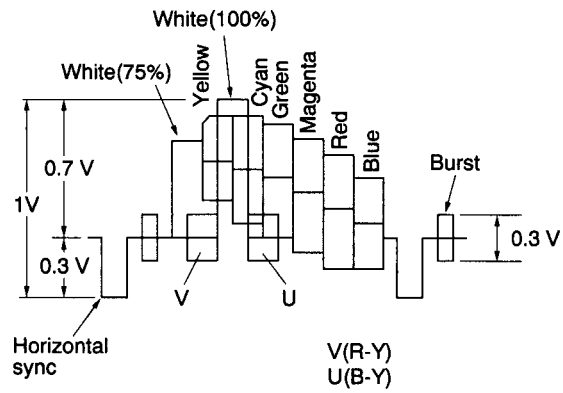


Fig.3-1-1 Colour bar signal waveform

● Colour bar pattern

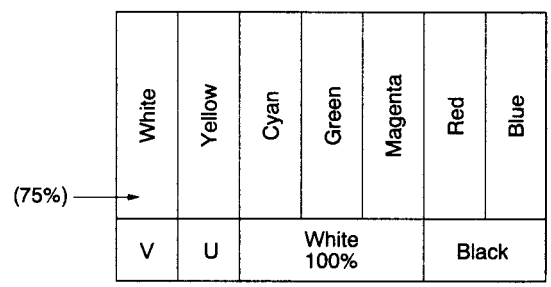


Fig.3-1-2 Colour bar pattern

3.2 SERVO CIRCUIT

Notes: • *Unless otherwise specified,all measurement point and adjustment parts are located on the MAIN BOARD.*
• *Set VCR to the mode A by remote controller.*
• *Use only buttons "O", depressing other buttons during adjustment may cause adjustment errors.*

3.2.1 PB switching point

Signal	• Alignment tape [MHPE],Stairstep
Mode	• PB
Equipment	• Oscilloscope
Measurement point	• J1411- pin 19 (VIDEO OUT) [TERMINAL BOARD]
Trigger slope (-)	• TP111(DRUM FF) , [PRE/REC BOARD]
Adjustment tool	• Presetting unit [PTU94008]
Specification	• 6.5 ± 0.5H

(1) Connect an oscilloscope to J1411- pin 19 (VIDEO OUT) and external trigger from TP111 (negative slope).
(2) Playback the stairstep signal of the alignment tape.
(3) Press the "O" button of the presetting unit.
(4) The adjustment is performed automatically.
Once the adjustment is performed, the VCR will go into the STOP mode.

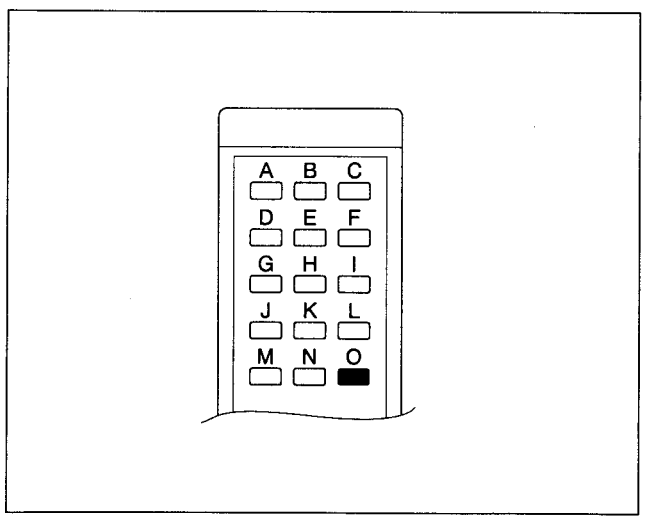


Fig.3-2-1 Presetting unit

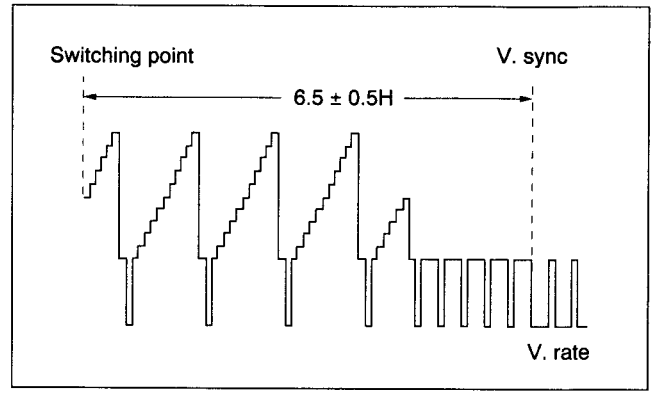


Fig.3-2-2 PB switching point

3.2.2 Slow tracking preset

Signal	• Tuner or colour bar
Mode	• SP/LP, REC → PB(SLOW)
Equipment	• TV-Monitor
Adjustment tool	• Presetting unit [PTU94008]
Specification	• Minimum noise

Note : *Set VCR to the mode A by remote controller. Use only buttons "B" and "C", depressing other buttons during adjustment may cause adjustment errors.*

(1) Record a colour bar signal in the SP mode.
(2) Playback recorded signal on the FWD slow mode.
(3) Observe the display on the TV monitor and adjust for optimum noise condition (best tracking) by depressing "B " or "C " buttons of the presetting unit.
(4) Depress the STOP button.
(5) Confirm that the bar noise is not visible on the TV monitor in the slow mode.
(6) Repeat steps (2) to (5) in the REV slow mode.
(7) Repeat steps (1) to (6) in the LP mode.

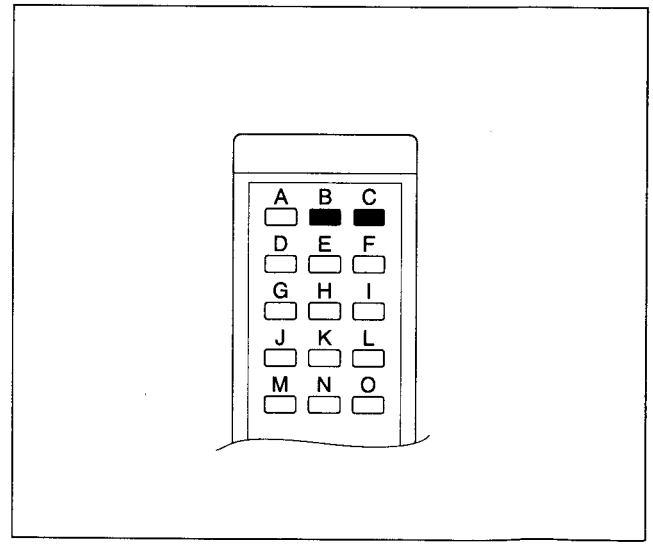


Fig.3-2-3 Presetting unit

3.3 VIDEO CIRCUIT

Notes: • *Unless otherwise specified,all measurement point and adjustment parts are located on the MAIN BOARD.*

• *Set VCR to the mode A by remote controller.*

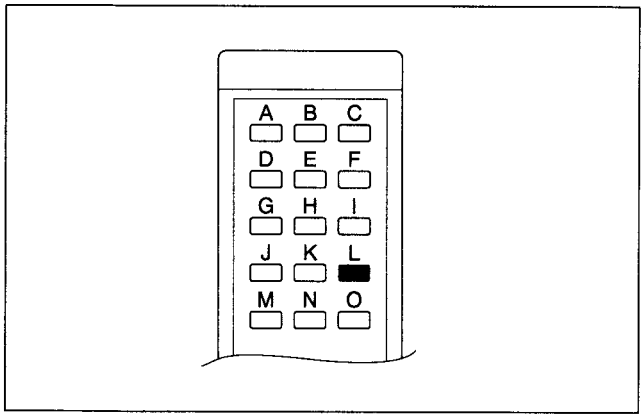


Fig.3-3-1 Presetting unit

3.3.1 Auto picture

Signal	• Monoscope
Mode	• REC then PB • SP/LP
Adjustment tool	• Presetting unit[PTU94008]
Specification	• STOP mode

(1) Record a monoscope signal in the SP mode.
(2) Playback the recorded signal.
(3) Press the "L" button of the presetting unit during playback.
(4) Confirm that VCR will go into the STOP mode.
(5) Repeat steps (2) to (4) in the LP mode.

3.4 SYSCON CIRCUIT

Notes: • *Unless otherwise specified,all measurement point and adjustment parts are located on the MAIN BOARD.*

• *When perform this adjustment,remove the MECHANISM assembly.*

3.4.1 Timer clock

Signal	• No signal
Mode	• EE
Equipment	• Frequency counter
Measurement point	• TP702 round(SYS.CLK)
Adjustment part	• C701 (TIMER CLOCK)
Specification	• 1024.008 ± 0.001 Hz [976.5549 ± 0.0010 usec]

(1) Connect the frequency counter to TP702 round and GND.
(2) Connect the short wire between TP701 round and Vcc(5V).
(3) Short the leads of capacitor C704 once in order to reset IC701.
(4) Disconnect the short wire then connect it again quickly.
(5) Adjust C701 for 1024.008 ± 0.001 Hz.
(976.5549 ± 0.0010 usec)

3.5 TUNER CIRCUIT

Note: *Unless otherwise specified, all measurement points and adjustment parts are located on the IF UNIT.*

3.5.1 RF AGC

Signal	• TV broadcasting
Mode	• Tuner
Equipment	• TV monitor
Measurement point	• IF UNIT
Adjustment part	• IF VR
Specification	• Minimum noise

Note: *Adjust IF VR (RF AGC) to correct for excess noise in the picture or when streaks cross interference occurs due to strong electrical fields.*

(1) Adjust IF VR to minimize noise or streaks on the TV screen.
(2) Adjust for noisy picture with strong signal. Then adjust until noise just disappears. Select other channels to confirm proper pick-up of channels.

3.6 DEMODULATOR CIRCUIT

Note: *Unless otherwise specified, all measurement points and adjustment parts are located on the DEMODULATOR BOARD.*

3.6.1 STEREO SEPARATION

Signal	• Sweep generator output (90 dBμ, 1 kHz)
Mode	• EE
Equipment	• Oscilloscope
Measurement point	• IC401-pin48 [MAIN board]
Adjustment part	•VR1501 (SEPARATION)
Specification	• Minimum

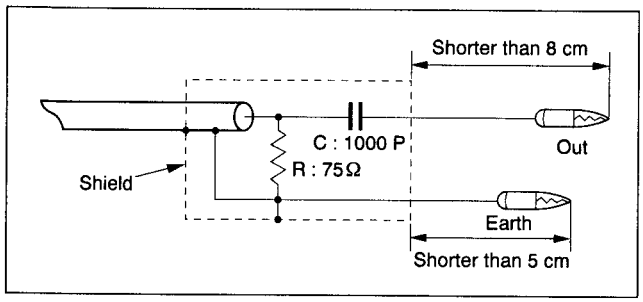


Fig. 3-6-1 Sweeper probe

(1) Use a sweeper probe as shown in Fig. 3-6-1.
(2) Supply 1 kHz R-only modulated IF signal to IF terminal of U/V tuner (front end).
(3) Connect an oscilloscope to IC401-pin48.
(4) Adjust VR1501 for minimum output level.

SECTION 4
CHARTS AND DIAGRAMS

NOTES OF SCHEMATIC DIAGRAM

Safety precautions
The Components identified by the symbol ⚠ are critical for safety. For continued safety, replace safety critical components only with manufactures recommended parts.

1. Units of components on the schematic diagram

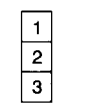
Unless otherwise specified.

1) All resistance values are in ohm. 1/6 W, 1/8 W (refer to parts list).
   Chip resistors are 1/16 W.
   K: KΩ (1000Ω), M: MΩ (1000KΩ)
2) All capacitance values are in μF, (P: PF).
3) All inductance values are in μH, (m: mH).
4) All diodes are 1SS133, MA165 or IN4148M (refer to parts list).

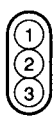
2. Indications of control voltage

AUX : Active only at high.
$\overline{\text{AUX}}$ or AUX(L) : Active at low.

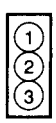
3. Interpreting Connector indications



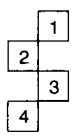
Removable connector



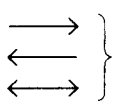
Wire soldered directly on board



Non-removable Board connector

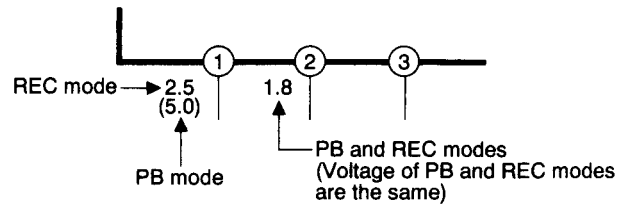


Board to Board


Connected pattern on board

4. Voltage measurement

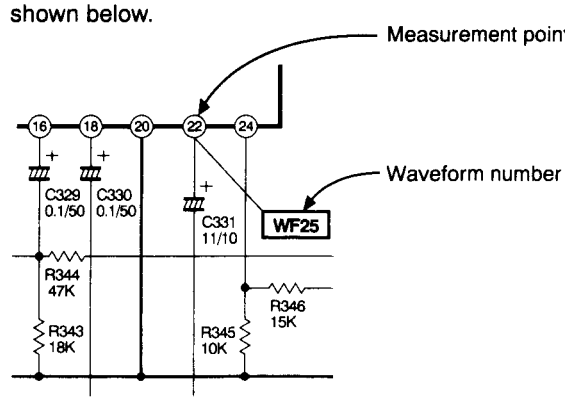
1) Video circuits
   REC : Colour bar signal in SP mode, normal VHS mode.
   PB : Alignment tape, colour bar SP mode, normal VHS mode.
   — : Unmeasurable or unnecessary to measure.
2) Audio circuis
   REC : 1KHz, –8 dBs sine wave signal in SP mode, Normal VHS mode.
   PB : REC then playback it.
3) Movie Camera circuits
   Measured using a correctly illuminated grey scale or colour bar test charts in the E-E mode.
4) Indication on schematic diagram
   Voltage Indications for REC and PB mode on the schematic diagram are as shown below.



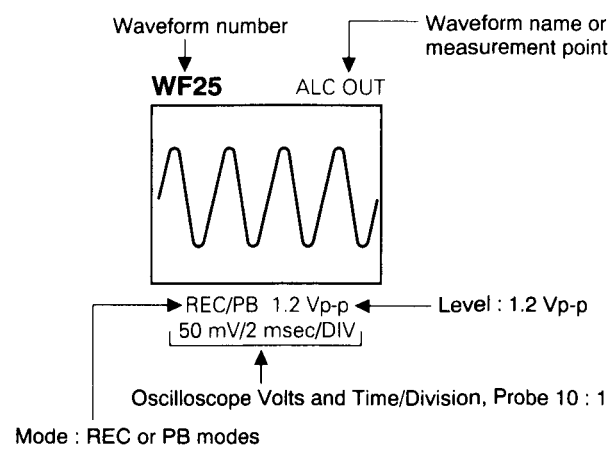
Note: If the voltages are not indicated on the schematic diagram, refer to the voltage charts.

5. Waveform measurement

1) Video circuits
   REC : Colour bar signal in SP mode, normal VHS mode.
   PB : Alignment tape, colour bar SP mode, normal VHS mode.
2) Audio circuits
   REC : 1KHz, –8 dBs sine wave signal in SP mode, normal VHS mode.
   PB : REC then playback it.
3) Movie Camera circuits
   Measured using a correctly illuminated grey scale or colour bar test chatrs in the E-E mode.
4) Indication on schematic diagram
   Waveform indications on the schematic diagram are as shown below.



5) Waveform indications



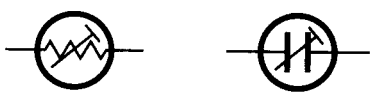
6. Signal path Symbols

The arrows indicate the signal path as follows.

- Playback signal path
- Playback and recording signal path
- Recording signal path (including E-E signal path)
- Y signal path
- Colour (Chroma) signal path
- R or R-Y signal path
- B or B-Y signal path
- Capstan servo path
- Drum servo path
- Reel servo path

7. Indication of the parts for adjustments

The parts for the adjustments are surrounded with the circle as shown below.



8. Indication of the parts not mounted on the circuit board

"OPEN" is indicated by the parts not mounted on the circuit board.
Or the symbol number is struck off by two lines as below.

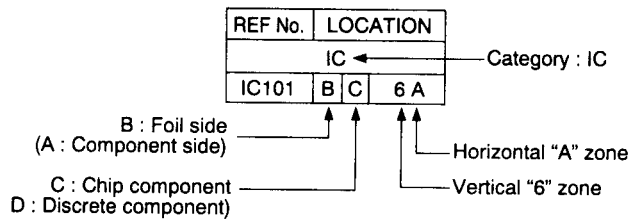
CIRCUIT BOARD NOTES

1. Foil and Component sides

1) Foil side (B side) :
   Parts on the foil side seen from foil face (pattern face) are indicated.
2) Component side (A side) :
   Parts on the component side seen from component face (parts face) indicated.

2. Parts location guides

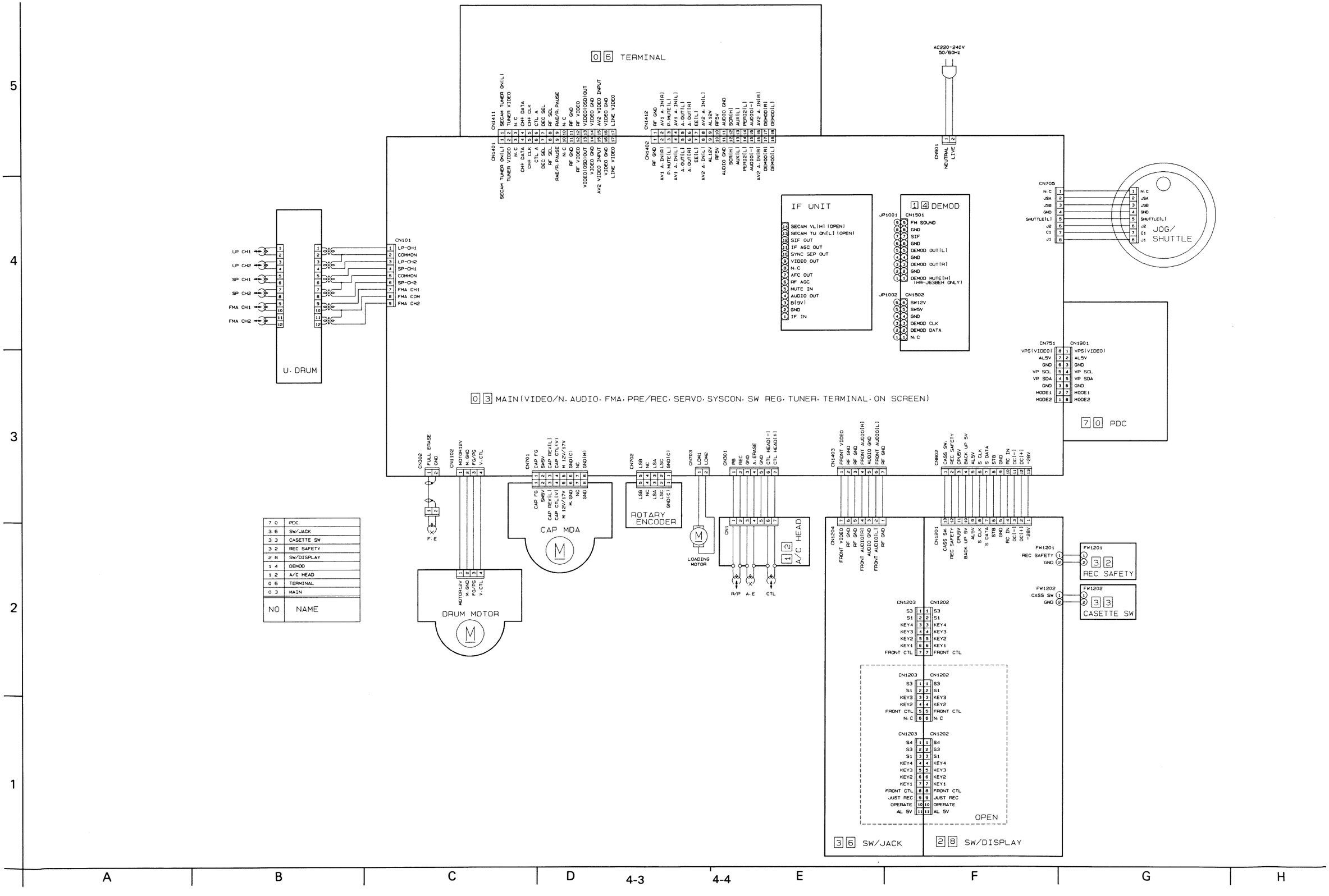
Parts location are indicated by guide scale on the circuit board.



Notes:

1) **For general information in service manual, please refer to the Service Manual of GENERAL INFORMATION Edition 4 No. 82054D (January 1994).**
2) **For repairing SMC (Surface Mounted Components), please refer to the VIDEO SERVICE GUIDE No. VTS81001.**

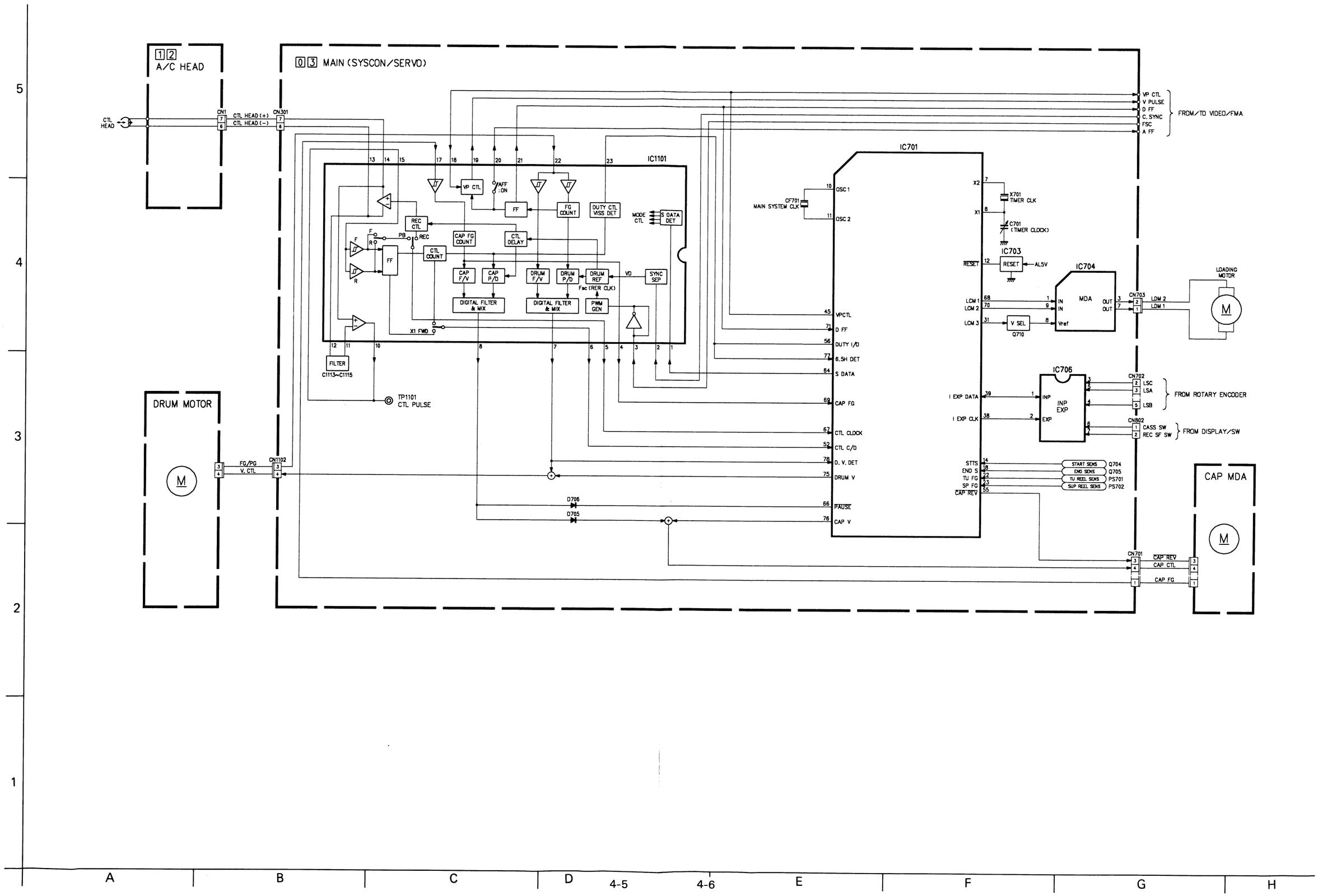
4.1 BOARD INTERCONNECTIONS



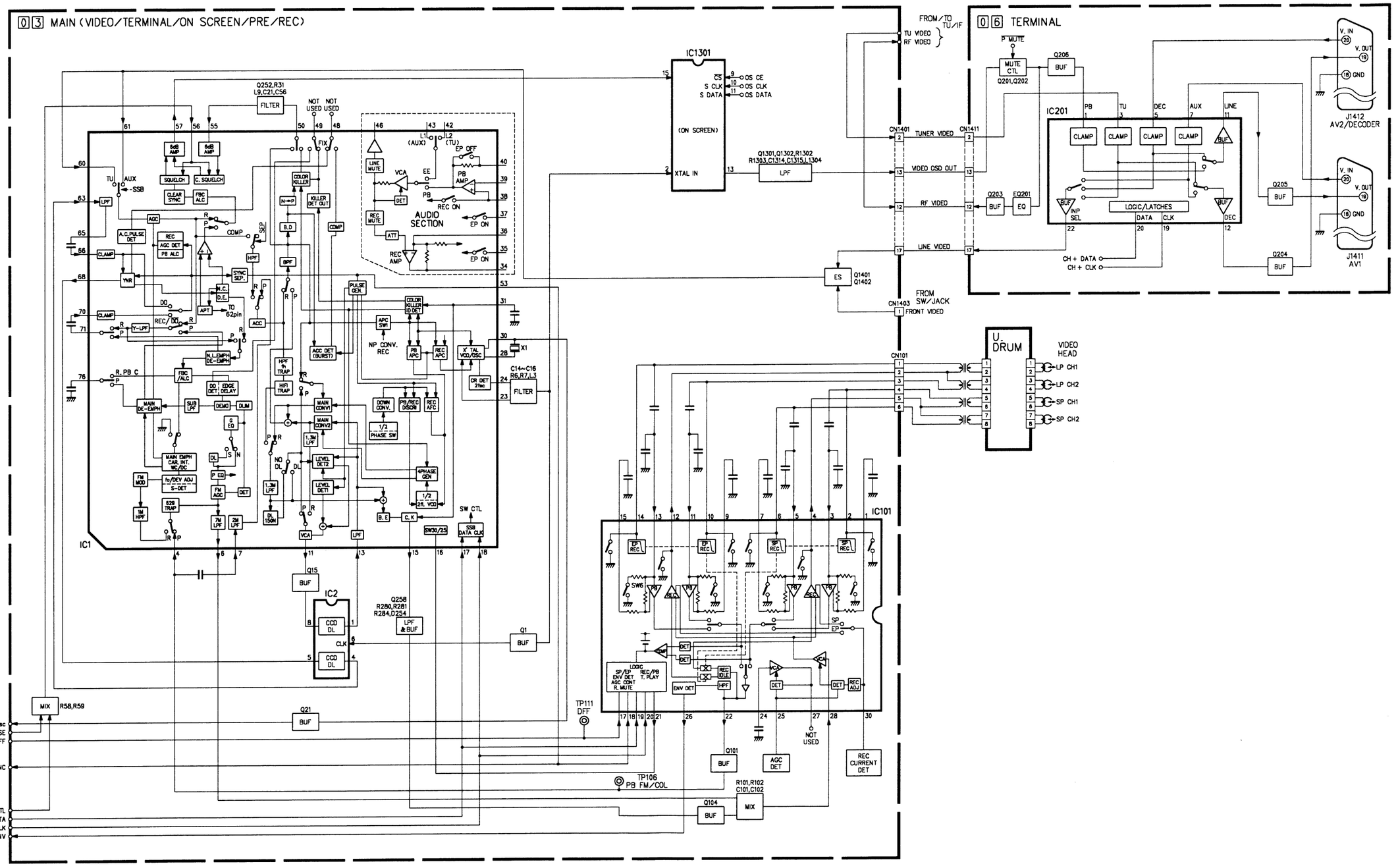
7 0	PDC
3 6	SW/JACK
3 3	CASETTE SW
3 2	REC SAFETY
2 8	SW/DISPLAY
1 4	DEMOD
1 2	A/C HEAD
0 6	TERMINAL
0 3	MAIN

NO	NAME

4.2 SYSTEM CONTROL BLOCK DIAGRAM



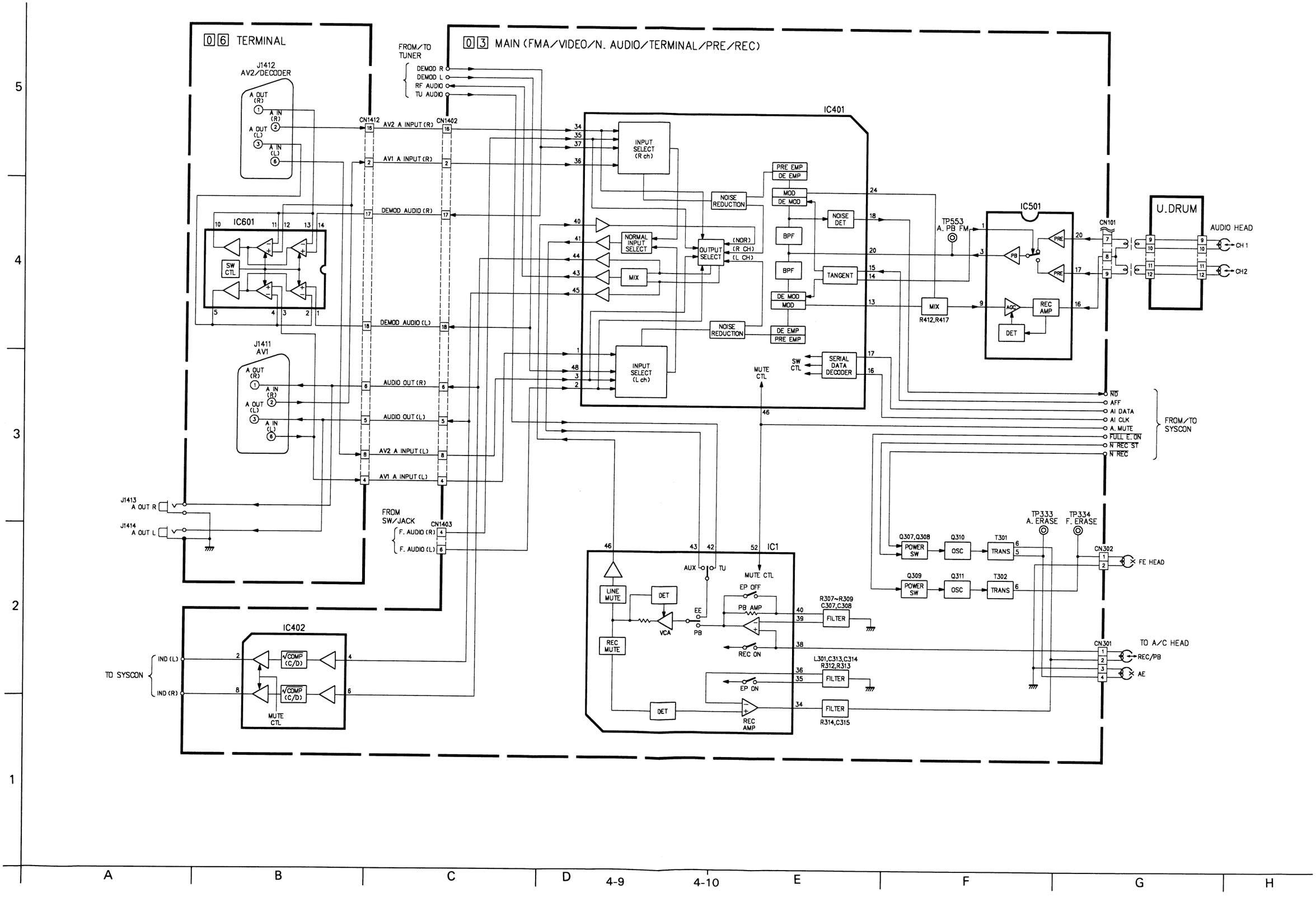
4.3 VIDEO BLOCK DIAGRAM



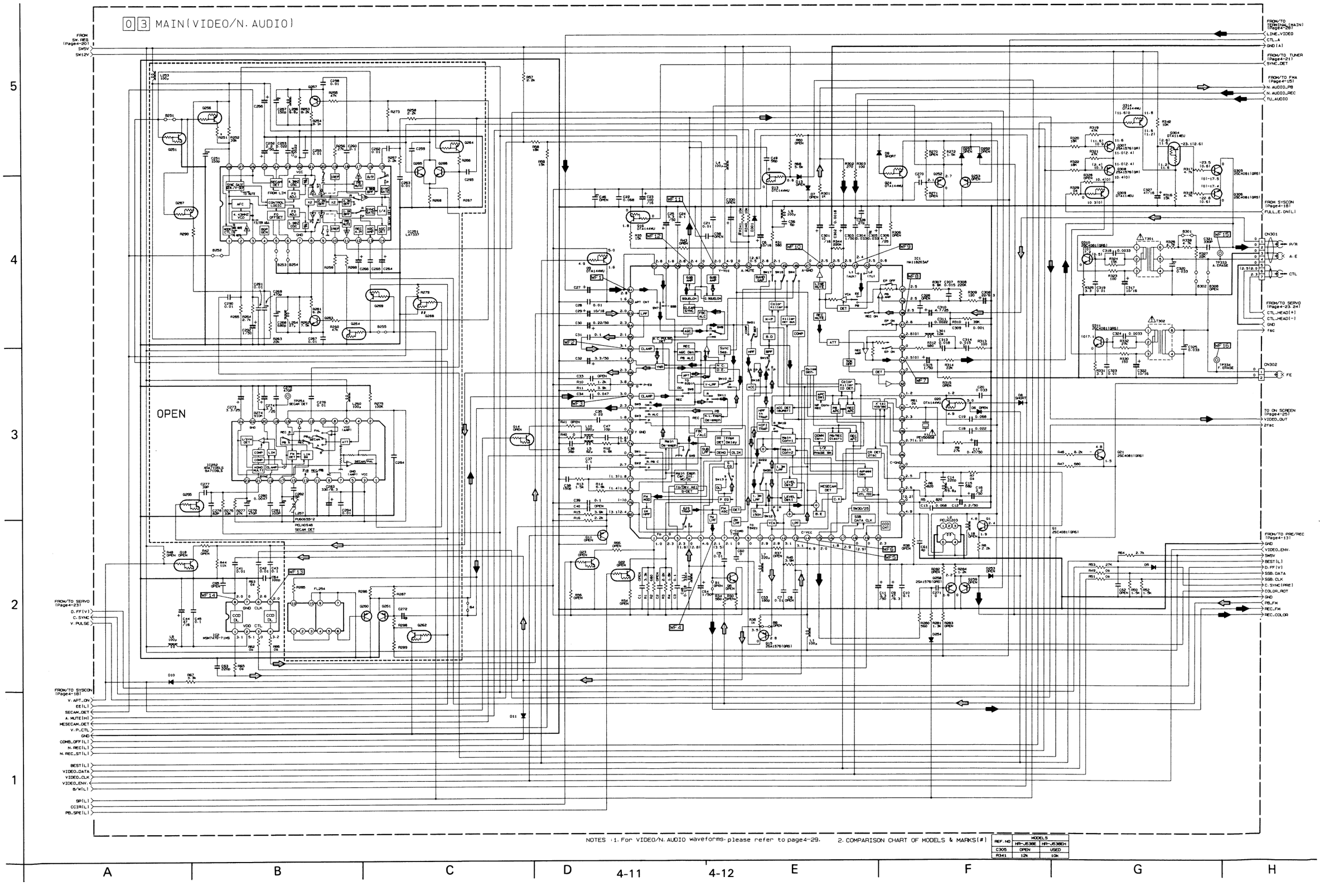
5 4 3 2 1

A B C D 4-7 4-8 E F G H

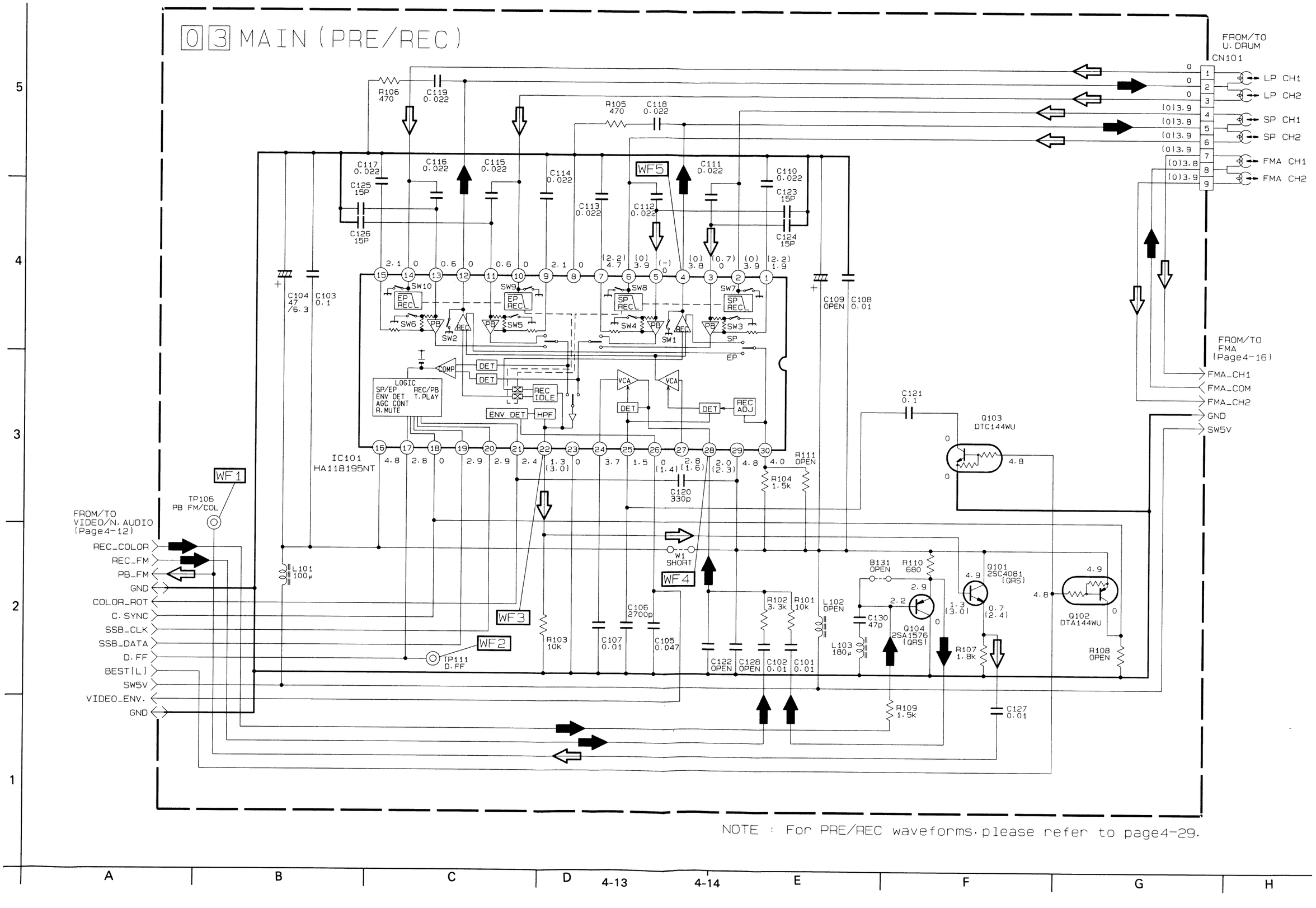
4.4 AUDIO BLOCK DIAGRAM



4.5 VIDEO AND AUDIO SCHEMATIC DIAGRAM

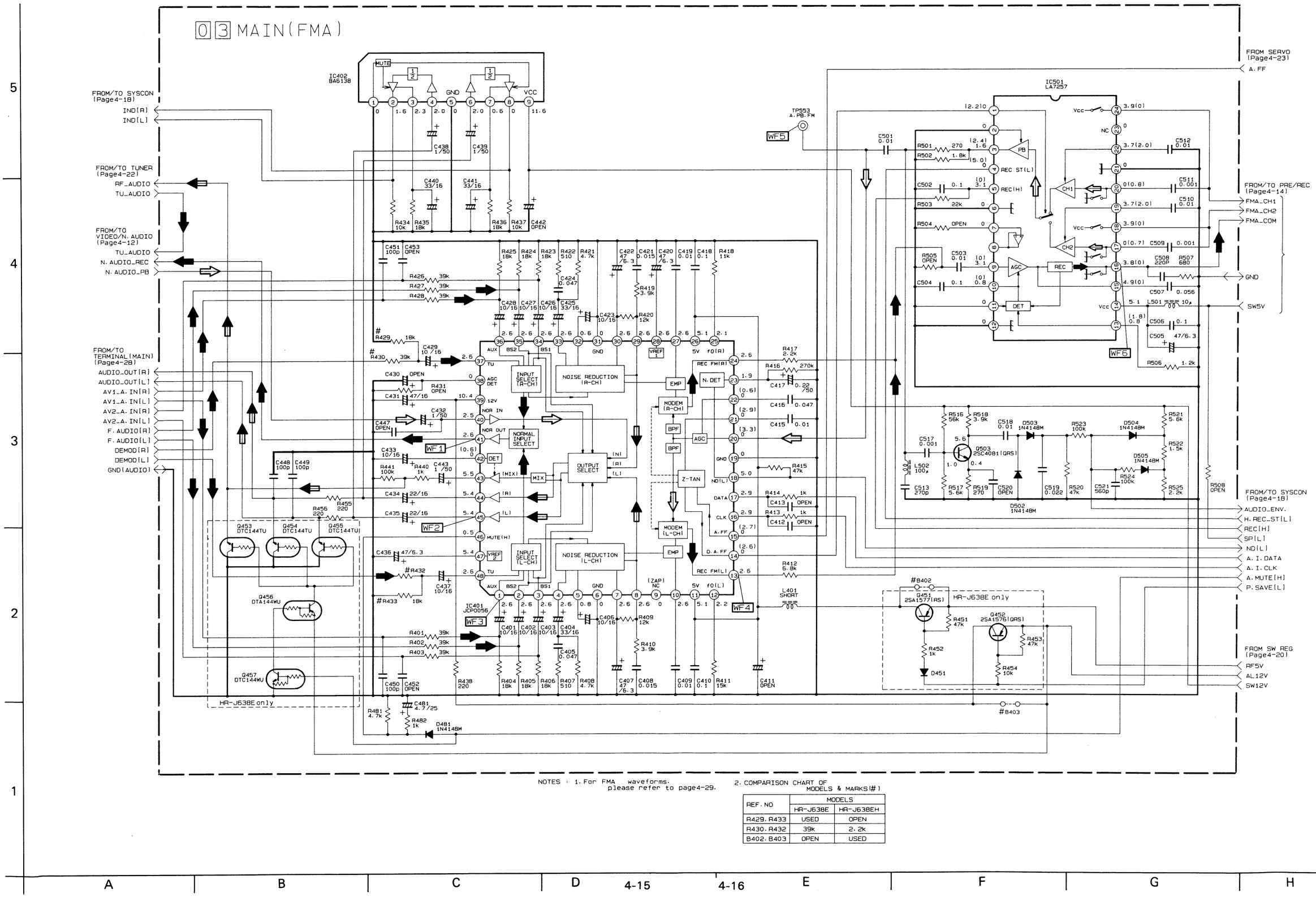

03 MAIN(VIDEO/N.AUDIO)
OPEN
NOTES : 1. For VIDEO/N. AUDIO waveforms, please refer to page4-29.
2. COMPARISON CHART OF MODELS & MARKS(#)
REF.NO | MODELS | HR-J538E | HR-J638EH
C305 | OPEN | USED
R341 | 12k | 10k
4-11
4-12

4.6 PRE/REC SCHEMATIC DIAGRAM



NOTE : For PRE/REC waveforms, please refer to page4-29.

4.7 FMA SCHEMATIC DIAGRAM

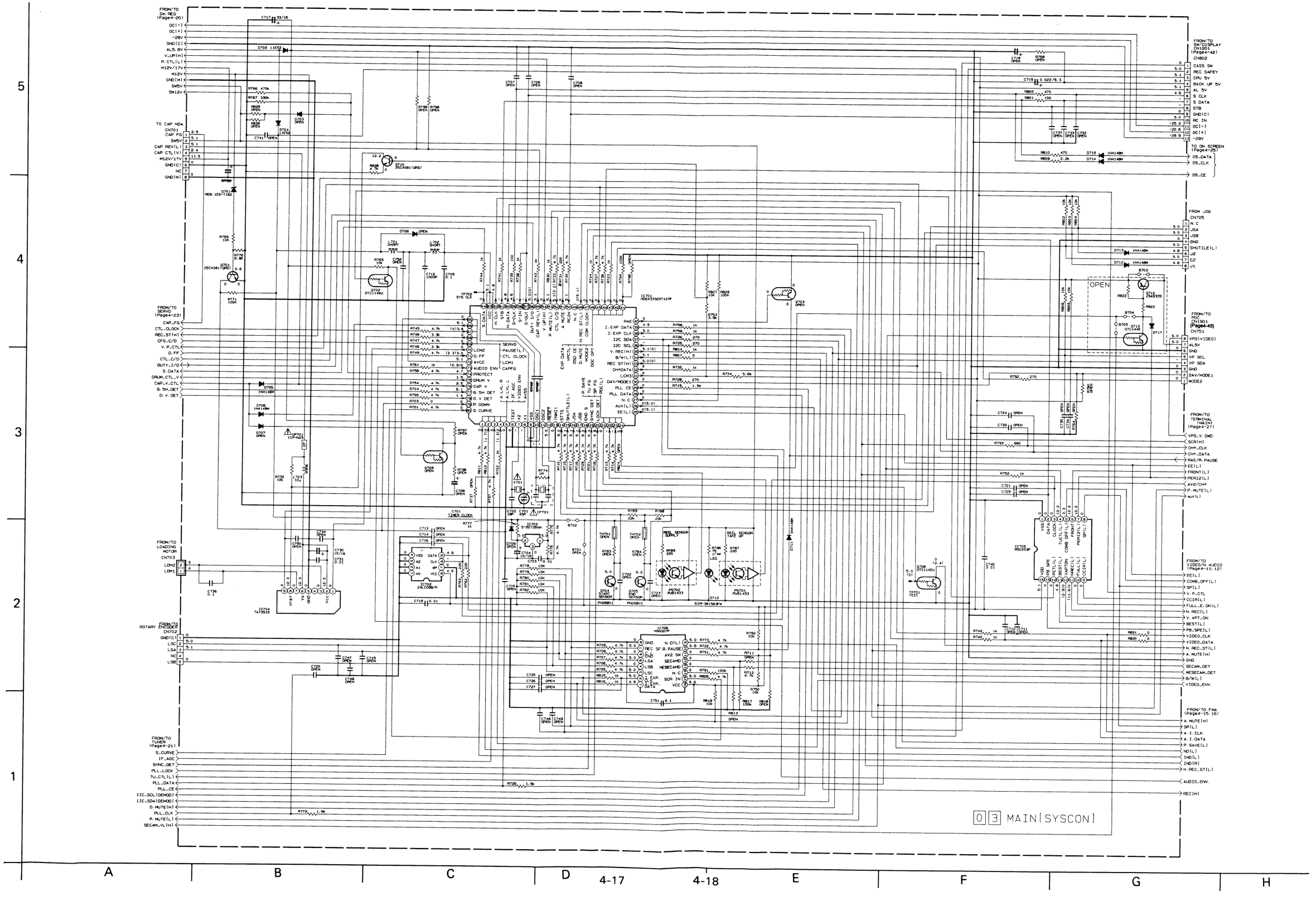


NOTES : 1. For FMA waveforms, please refer to page4-29.

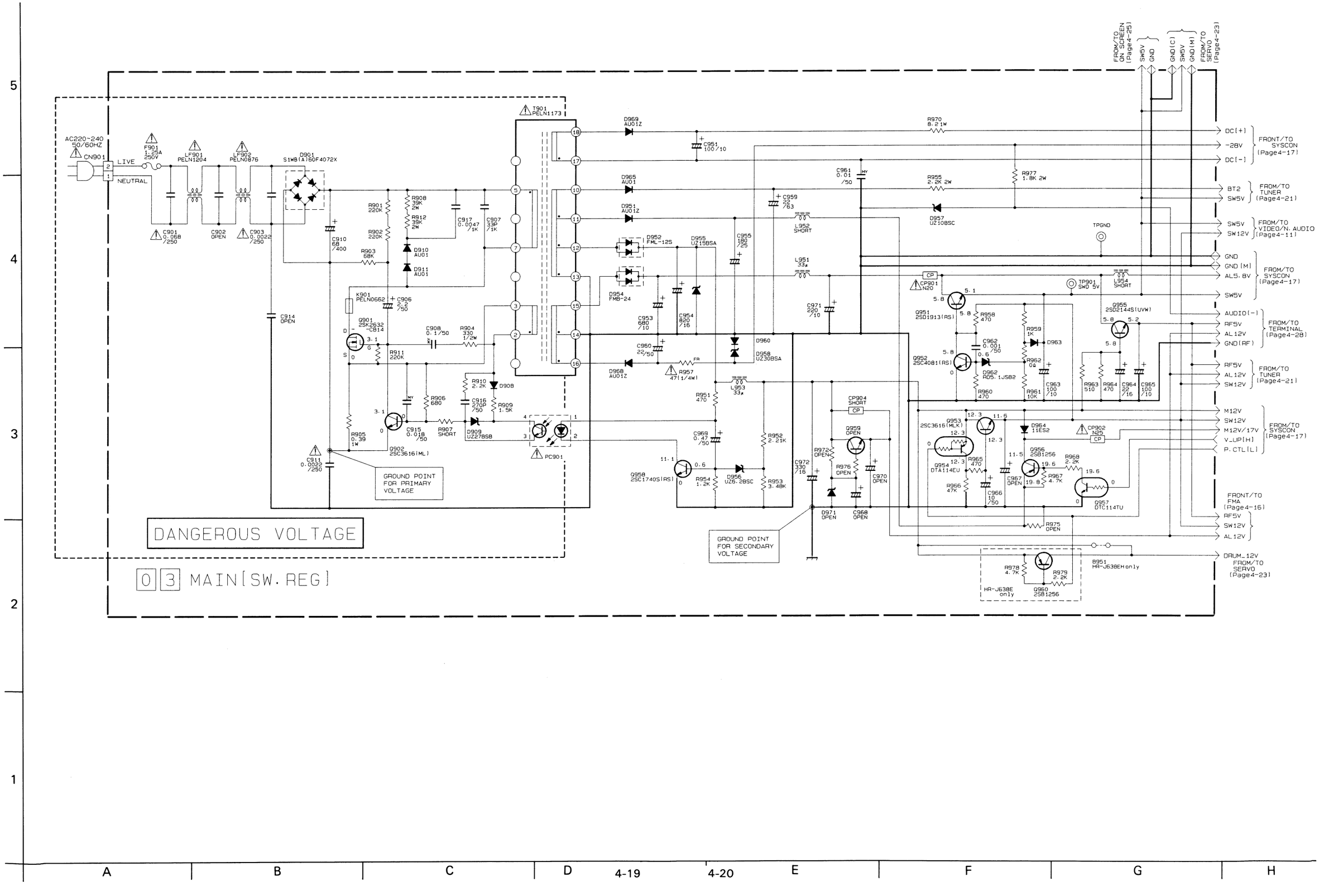
2. COMPARISON CHART OF MODELS & MARKS(#)

REF. NO	MODELS	
	HR-J638E	HR-J638EH
R429. R433	USED	OPEN
R430. R432	39k	2.2k
B402. B403	OPEN	USED

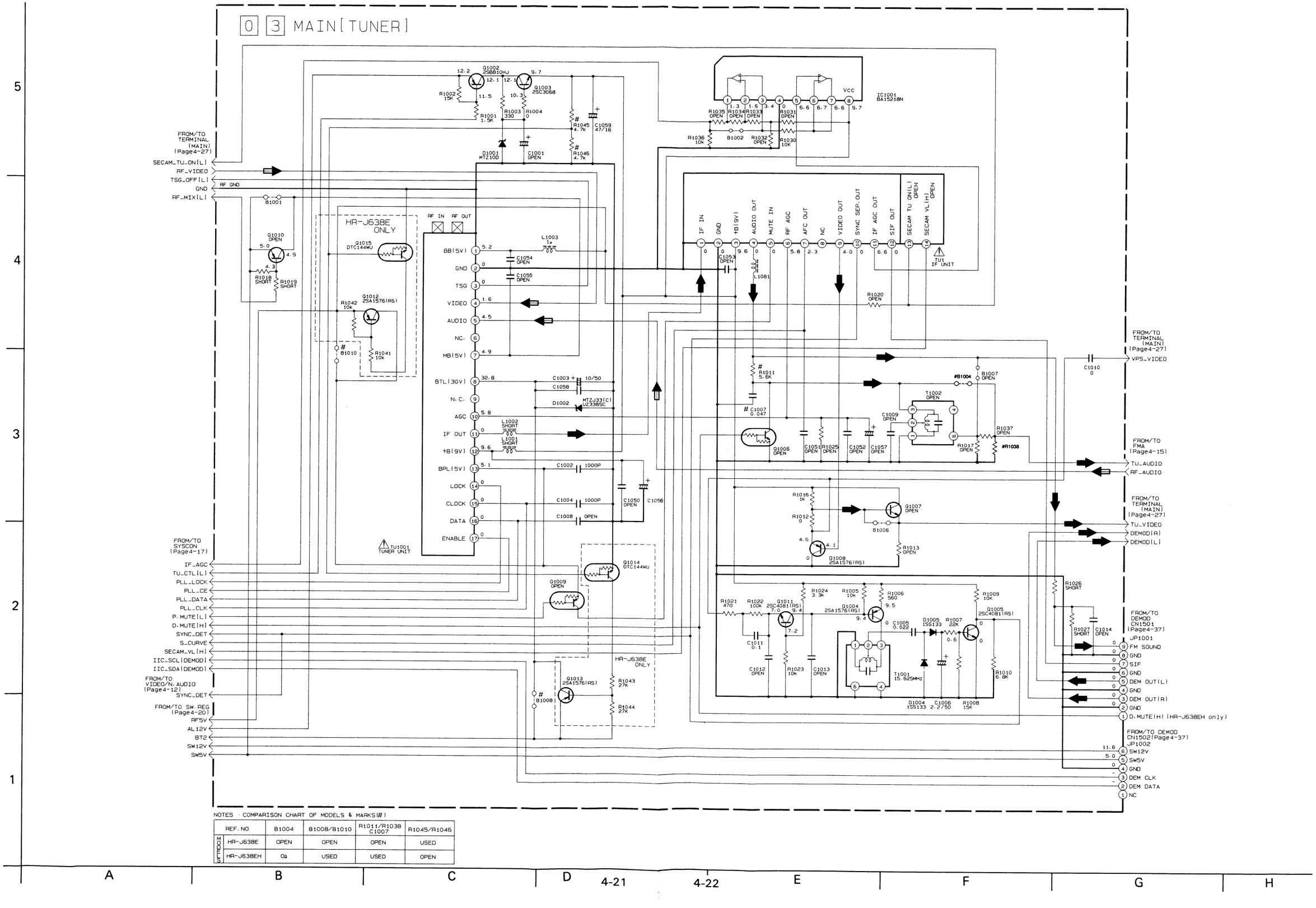
4.8 SYSTEM CONTROL SCHEMATIC DIAGRAM



4.9 SWITCHING REGULATOR SCHEMATIC DIAGRAM



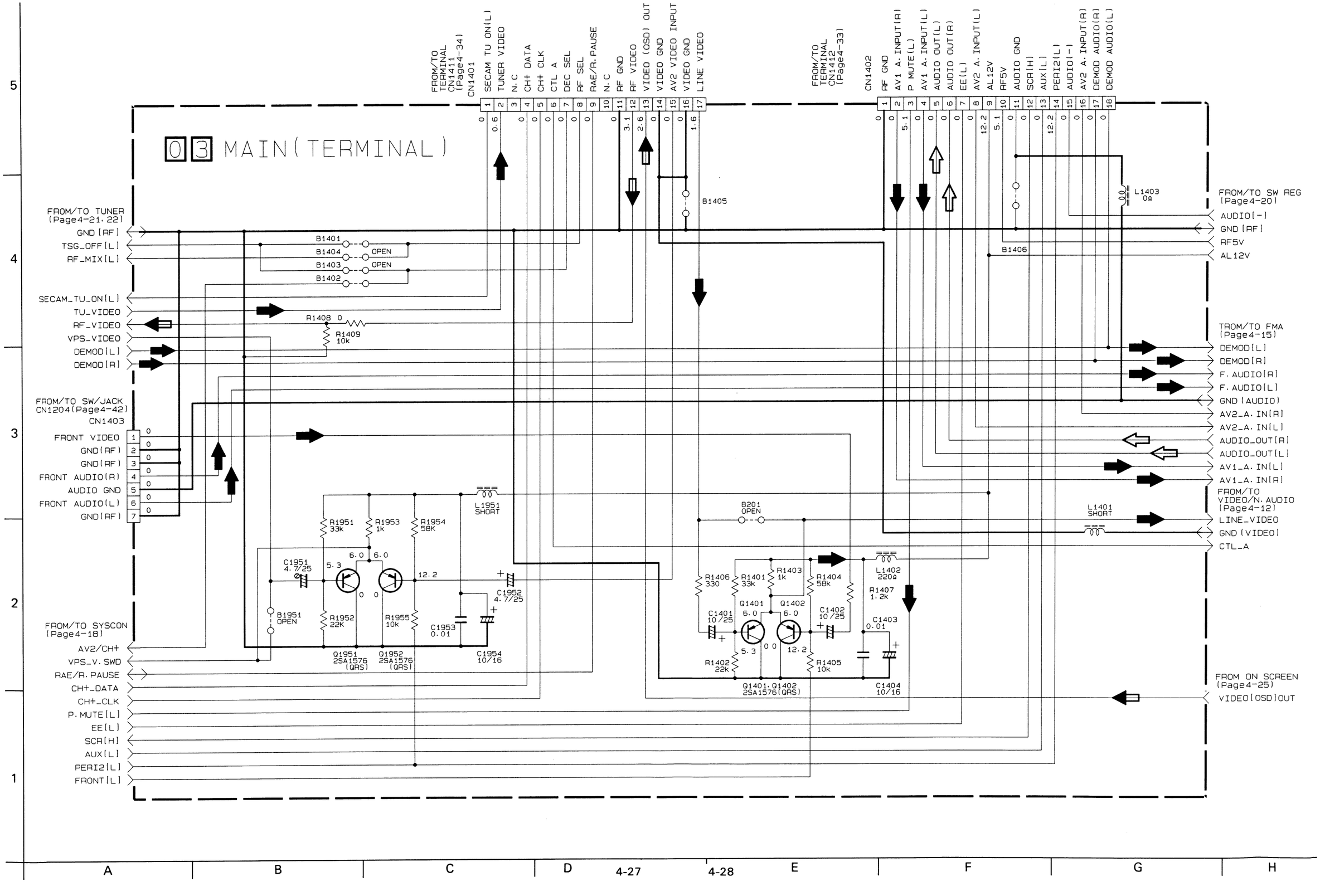
4.10 TUNER SCHEMATIC DIAGRAM



NOTES : COMPARISON CHART OF MODELS & MARKS(#)

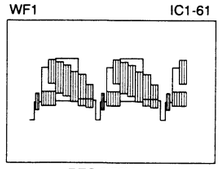
MODEL	REF. NO	B1004	B1008/B1010	R1011/R1038 C1007	R1045/R1046
	HR-J638E	OPEN	OPEN	OPEN	USED
	HR-J638EH	0Ω	USED	USED	OPEN

4.13 TERMINAL (MAIN) SCHEMATIC DIAGRAM



WAVEFORMS

— VIDEO / N.AUDIO —

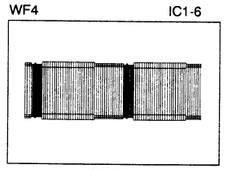
WF1 IC1-61

REC 0.72Vp-p
20mV/20 μsec /DIV

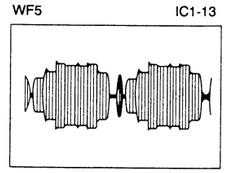
WF2 IC1-66

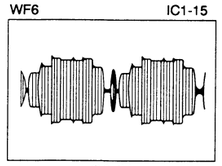
PB 0.56Vp-p
20mV/5 μsec /DIV

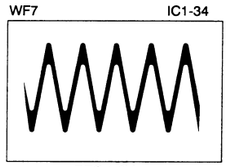
WF3 IC1-70

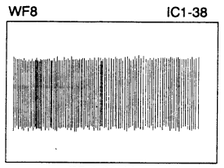
REC/PB 0.56Vp-p
20mV/20 μsec /DIV

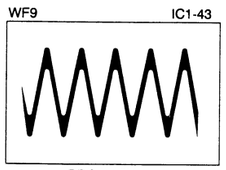
WF4 IC1-6

REC 0.05Vp-p
5mV/5msec/DIV

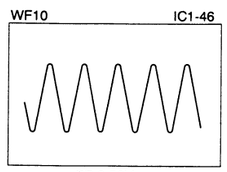
WF5 IC1-13

PB 0.6Vp-p
20mV/20 μsec/DIV

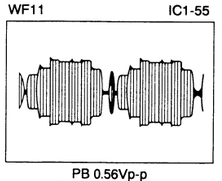
WF6 IC1-15

REC 0.4Vp-p
20mV/20 μsec/DIV

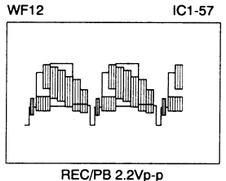
WF7 IC1-34

REC 1.0Vp-p
50mV/1msec/DIV

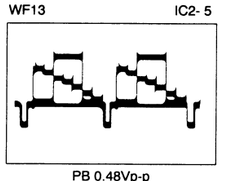
WF8 IC1-38

PB 0.005Vp-p
0.5mV/5msec/DIV

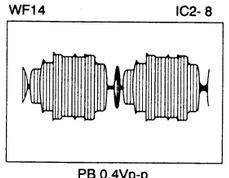
WF9 IC1-43

REC 0.12Vp-p
5mV/1msec/DIV

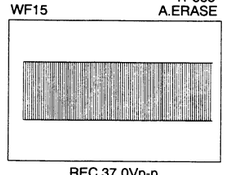
WF10 IC1-46

PB 0.56Vp-p
20mV/1msec/DIV

WF11 IC1-55

PB 0.56Vp-p
20mV/20 μsec/DIV

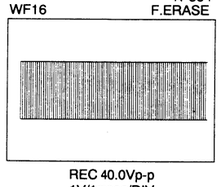
WF12 IC1-57

REC/PB 2.2Vp-p
0.1V/20 μsec/DIV

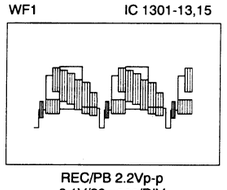
WF13 IC2- 5

PB 0.48Vp-p
20mV/20 μsec/DIV

WF14 IC2- 8

PB 0.4Vp-p
20mV/20 μsec/DIV

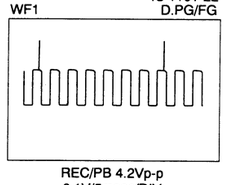
WF15 TP333 A.ERASE

REC 37.0Vp-p
1V/1msec/DIV

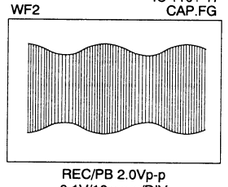
— ON SCREEN —

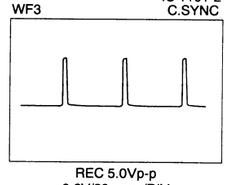
WF16 TP334 F.ERASE

REC 40.0Vp-p
1V/1msec/DIV

WF1 IC 1301-13,15

REC/PB 2.2Vp-p
0.1V/20 μsec/DIV

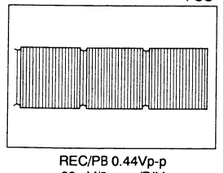
— SERVO —

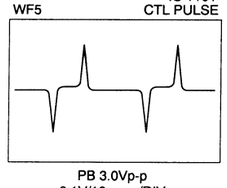
WF1 IC 1101-22 D.PG/FG

REC/PB 4.2Vp-p
0.1V/5msec/DIV

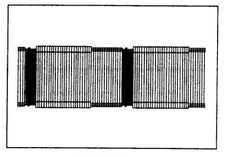
WF2 IC 1101-17 CAP.FG

REC/PB 2.0Vp-p
0.1V/10msec/DIV

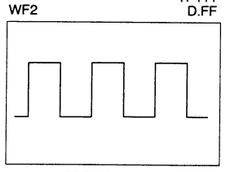
WF3 IC 1101-2 C.SYNC

REC 5.0Vp-p
0.2V/20 μsec/DIV

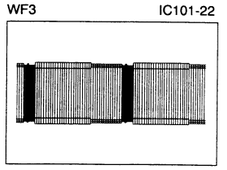
— PRE / REC —

WF4 IC 1101-3 FSC

REC/PB 0.44Vp-p
20mV/5msec/DIV

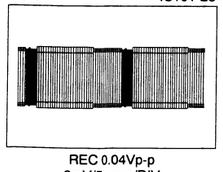
WF5 IC 1101 CTL PULSE

PB 3.0Vp-p
0.1V/10msec/DIV

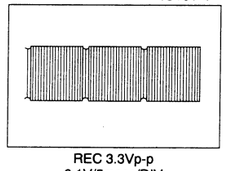
WFI TP106 PB FM

PB 0.56Vp-p
20mV/5msec/DIV

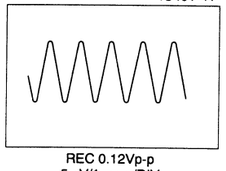
WF2 TP111 D.FF

REC/PB 5.2Vp-p
0.2V/10msec/DIV

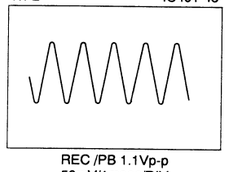
WF3 IC101-22

PB 0.56Vp-p
20mV/5msec/DIV

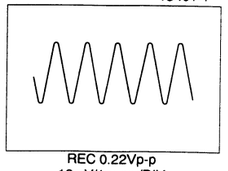
— FMA —

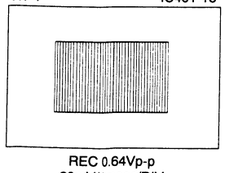
WF4 IC101-28

REC 0.04Vp-p
2mV/5msec/DIV

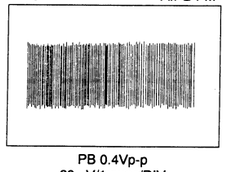
WF5 IC101-4

REC 3.3Vp-p
0.1V/5msec/DIV

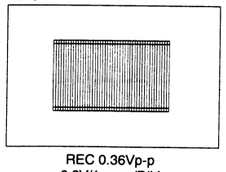
WF1 IC401-41

REC 0.12Vp-p
5mV/1msec/DIV

WF2 IC401-45

REC /PB 1.1Vp-p
50mV/1msec/DIV

WF3 IC401-1

REC 0.22Vp-p
10mV/1msec/DIV

WF4 IC401-13

REC 0.64Vp-p
20mV/1msec/DIV

WF5 TP553 A.PB FM

PB 0.4Vp-p
20mV/1msec/DIV

WF6 IC501-16

REC 0.36Vp-p
0.2V/1msec/DIV

COMPONENT PARTS LOCATION GUIDE

REF.NO.	LOCATION
CAPACITOR	
C1	B C 7F
C2	B C 8F
C3	B C 8G
C5	B C 8G
C6	A D 9H
C7	B C 9G
C8	B C 9F
C9	A D 8I
C10	B D 8I
C11	A D 9G
C12	A D 9H
C13	B C 8H
C14	A D 9H
C15	B C 9H
C16	B D 9H
C17	A D 10H
C18	B C 8I
C19	B C 8I
C20	B C 8I
C21	B C 6H
C22	B C 7G
C23	A D 6G
C24	B C 5H
C25	A D 5H
C27	B C 5G
C28	B C 6G
C29	A D 6G
C30	B C 5G
C31	A D 6G
C32	B C 5F
C33	B C 6F
C34	B C 6G
C35	B C 6G
C36	B C 6F
C37	B C 7F
C38	B C 8F
C39	B C 7F
C40	B C 7G
C41	B C 7D
C42	B C 8F
C43	B C 6D
C44	B C 8D
C45	B C 7D
C46	A D 7H
C47	B C 7G
C48	B C 9E
C49	B C 5H
C53	B C 8F
C54	B C 8G
C56	B C 6I
C58	B C 6I
C60	B C 8G
C61	B C 9H
C62	B C 9I
C63	B C 7D
C64	B C 6D
C65	B C 7D
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C102	B C 13I
C103	B C 14J
C104	A D 15J
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C126	B C 14J
C127	B C 14I
C128	B C 13I
C129	B C 13J
C130	B C 13H
C131	B C 12H
C251	B C 18F
C252	A D 19E
C253	B C 19E
C254	B C 19F
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C260	B C 20F
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C266	B C 21G
C267	B C 19F
C268	B C 19G
C269	B C 19G
C270	B C 6J
C271	B C 7E
C272	B C 5F
C273	A D 19B
C274	A D 19B
C275	B C 20B
C276	B C 20B
C277	A D 19A
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C281	B C 20A
C282	A D 20B
C283	B C 21A
C284	A D 21B
C290	B C 18H
C291	B C 19H
C292	B C 19H
C294	B C 21B
C295	B C 21F
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C302	A D 7J
C303	A D 7J
C304	B C 7I
C305	B C 7I
C306	B C 7J
C307	B C 7J
C308	A D 7J
C309	B C 7J
C310	B C 8J
C311	B C 8J
C312	B C 8K
C313	A D 8K
C314	B C 8K
C315	B C 8I
C316	B C 7M
C317	A D 7M
C318	B C

REF.NO.	LOCATION
C319	B C 6M
C320	A D 7L
C321	B C 7L
C322	A D 8N
C323	B C 7N
C324	B C 7O
C325	A D 8N
C326	B C 8J
C327	A D 6M
C328	B C 7I
C330	A D 5J
C401	A D 13N
C402	A D 13M
C403	A D 12M
C404	A D 12L
C405	B C 13L
C406	A D 13M
C407	A D 13M
C408	B C 13L
C409	A D 14M
C410	A D 14M
C411	A D 11N
C412	B C 15M
C413	B C 15M
C415	B C 15M
C416	B C 15M
C417	B C 15M
C418	B C 15N
C419	B C 15N
C420	A D 15N
C421	A D 15O
C422	A D 15O
C423	B C 15O
C424	A D 14O
C425	A D 15O
C426	A D 14O
C427	A D 14O
C428	A D 14O
C429	A D 14O
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C443	A D 13O
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C451	B C 13P
C452	B C 12M
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C521	B C 17I
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C702	B C 14D
C703	B C 15C
C704	B C 13D
C705	B C 16C
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C708	B C 1B
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C711	B C 16F
C712	B C 15F
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C714	B C 18C
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C716	B C 18C
C717	B C 4B
C718	B C 2C
C719	B C 1B
C720	B C 17G
C721	B C 15H
C722	B C 4E
C723	B C 18D
C724	B C 17C
C725	B C 12B
C726	B C 13B
C727	B C 12B
C728	B C 15G
C729	B C 15H
C730	B C 6O
C731	B C 6O
C732	B C 2B
C733	B C 2B
C734	B C 22E
C735	B C 22E
C736	B C 5L
C737	B C 1B
C738	B C 10I
C739	B C 17G
C740	B C 15H
C741	B C 4A
C742	B C 15D
C743	B C 16F
C744	B C 6O
C745	B C 7B
C746	B C 7B
C747	B C 6B
C748	B C 3B
C749	B C 3B
C750	B C 7O
C751	B C 13C
C752	B C 15F
C901	B C 2P
C902	B C 3P
C903	B C 2N
C906	B C 3L
C907	B C 3K
C908	B C 2K
C910	B C 2M
C911	B C 1M
C914	B C 2N
C915	B C 2K
C916	B C 4L
C917	B C 3K

REF.NO.	LOCATION
C951	A D 1H
C953	A D 2H
C954	A D 3H
C955	A D 4H
C959	A D 4G
C960	A D 2H
C961	A D 1G
C962	A B 2E
C963	A D 1F
C964	A D 3E
C965	A D 3D
C966	A D 2F
C967	A D 2E
C968	A D 3E
C969	A D 4I
C970	A D 4E
C971	A D 2G
C972	A D 2G
C1001	B C 19O
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C1003	A D 19M
C1004	B C 19L
C1005	B C 21O
C1006	B C 21O
C1007	B C 20J
C1008	B C 19K
C1009	B C 20J
C1010	B C 21N
C1011	B C 20O
C1012	B C 20O
C1013	B C 20O
C1014	B C 20L
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C1058	B C 19M
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C1103	B C 9L
C1104	B C 9L
C1105	B C 9M
C1106	B C 9L
C1107	B C 9L
C1108	B C 10L
C1109	B C 10L
C1110	B C 9M
C1111	B C 9L
C1112	B C 9L
C1113	A D 9K
C1114	A D 9L
C1115	A D 9L
C1116	A D 9K
C1301	A B 18N
C1302	A D 17N
C1303	A D 17N
C1304	A D 17N
C1305	A D 16M
C1306	A B 18M
C1307	A D 16M
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C1312	A D 16M
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C1314	A D 18N
C1315	A D 18N
C1316	A D 17M
C1317	A D 17M
C1318	A D 17M
C1320	A D 16M
C1401	A D 11O
C1402	A D 11O
C1403	B C 10O
C1404	A D 10O
C1951	A D 17O
C1952	A D 16O
C1953	B C 18O
C1954	A D 18O

CONNECTOR

CN101	A	D	14K
CN301	A	D	7L
CN302	A	D	9N
CN701	A	D	10J
CN702	A	D	6B
CN703	A	D	6L
CN705	A	D	3B
CN751	A	D	22E
CN802	A	D	2A
CN901	A	D	1O
CN1102	A	D	11M
CN1401	A	D	16P
CN1402	A	D	11P
CN1403	A	D	22B

CIRCUIT PROTECTOR

CP701	A	D	8O
CP901	A	D	2F
CP902	A	D	3F
CP904	A	D	3E
CP1101	A	D	11M

DIODE

D5	A	D	15I
D6	A	D	8E
D7	A	D	6J
D8	A	D	8E
D9	A	D	6J
D10	A	D	9E
D11	A	D	9F
D13	A	D	5H
D251	A	D	6I
D252	A	D	8E
D253	A	D	7E
D254	A	D	7E
D301	A	D	6J
D451	A	D	11N
D481	A	D	12O
D502	A	D	16J
D503	A	D	17I
D504	A	D	16I
D505	A	D	17I
D701	A	D	11D
D702	A	D	4B
D703	A	D	4B
D704	A	D	4B
D705	A	D	14F
D706	A	D	15F
D707	A	D	15F
D708	A	D	15F
D709	A	D	14C
D710	A	D	11E
D711	A	D	18D
D712	A	D	3B
D713	A	D	3B

REF.NO.	LOCATION
D714	A D 16G
D715	A D 17G
D717	A D 19H
D901	A D 2N
D908	A D 3L
D909	A D 4L
D910	A D 4L
D911	A D 3K
D951	A D 4I
D952	A D 3H
D954	A D 2H
D955	A D 3I
D956	A D 4J
D957	A D 1E
D958	A D 1F
D960	A D 2F
D962	A D 2E
D963	A D 2G
D964	A D 3G
D965	A D 4I
D968	A D 1H
D969	A D 1I
D971	A D 2F
D1001	A D 19O
D1002	A D 19M
D1004	A D 21O
D1005	A D 21O

FUSE

F901	A	D	1O

IC

IC1	B	C	7H
IC2	B	C	7D
IC101	A	D	13K
IC251	A	D	18F
IC252	A	D	21B
IC401	B	C	14N
IC402	A	D	13E
IC501	A	D	16K
IC701	B	C	15E
IC702	A	D	16C
IC703	A	D	14D
IC704	A	D	6O
IC705	A	D	14G
IC706	A	D	13C
IC1001	A	D	22L
IC1101	A	D	10L
IC1301	A	D	18M

COIL

L1	A	D	9I
L2	A	D	9H
L3	A	D	9H
L4	A	D	6H
L5	A	D	6F
L6	A	D	9D
L7	A	D	9F
L9	A	D	6I
L10	A	D	6F
L11	A	D	10E
L18	B	C	9H
L101	A	D	15I
L102	A	D	12I
L103	A	D	13H
L253	A	D	21F
L254	A	D	19G
L256	A	D	19E
L257	A	D	20B
L260	A	D	21A
L301	A	D	8K
L401	A	D	12N
L501	A	D	15I
L502	A	D	17J
L701	A	D	15G
L702	A	D	16F
L703	A	D	7O
L951	A	D	2G
L952	A	D	3G
L953	A	D	3G
L954	A	D	2D
L1001	A	D	21L
L1002	A	D	21L
L1003	A	D	19P
L1081	A	B	21L
L1101	A	D	10L
L1301	A	D	16M
L1302	A	D	17M
L1303	A	D	17N
L1304	A	D	18N
L1305	A	D	17L
L1306	A	D	17M
L1401	A	D	15O
L1402	A	D	10O
L1403	B	C	12P
L1951	A	D	18O

TRANSISTOR

Q1	B	C	9H
Q8	B	C	8F
Q9	B	C	5E
Q11	B	C	7F
Q13	B	C	5H
Q14	B	C	5G
Q15	B	C	9F
Q16	B	C	5H
Q18	B	C	9D
Q20	B	C	9F
Q21	B	C	8H
Q22	B	C	8F
Q23	B	C	7F
Q24	B	C	6J
Q101	B	C	14J
Q102	B	C	14I
Q103	B	C	13I
Q104	B	C	12H
Q251	B	C	19E
Q252	B	C	6I
Q253	B	C	6I
Q254	B	C	20G
Q255	B	C	19A
Q256	B	C	18F
Q257	B	C	19E
Q258	B	C	7E
Q259	B	C	7E
Q260	B	C	5E
Q261	B	C	6E
Q262	B	C	6E
Q263	B	C	19G
Q264	B	C	20F
Q265	B	C	20E
Q266	B	C	21E
Q267	B	C	18G
Q268	B	C	21B
Q269	B	C	20G
Q304	B	C	6M
Q305	B	C	6L
Q306	B	C	6L
Q307	B	C	6M
Q308	B	C	7M
Q309	B	C	7M
Q310	B	C	7M

REF.NO.	LOCATION
Q311	B C 7N
Q314	B C 6M
Q451	B C 12N
Q452	B C 11N
Q453	B C 12P
Q454	B C 12O
Q455	B C 12O
Q456	B C 12O
Q457	B C 12O
Q503	B C 17J
Q701	B C 13D
Q702	B C 12D
Q703	B C 17D
Q704	A D 4E
Q705	B C 18E
Q708	B C 10N
Q709	B C 15F
Q710	B C 7P
Q712	A D 21B
Q713	B C 18H
Q901	A D 2L
Q902	A D 2L
Q951	A D 1F
Q952	B C 2E
Q953	A D 3E
Q954	B C 2E
Q955	A D 3D
Q956	B C 2G
Q957	B C 3F
Q958	A D 4J
Q959	A D 3E
Q960	A D 11M
Q1002	A D 19N
Q1003	A D 19N
Q1004	B C 20O
Q1005	B C 22O
Q1006	B C 21M
Q1007	B C 21M
Q1008	B C 21M
Q1009	B C 20N
Q1010	B C 20N
Q1011	B C 20O
Q1012	B C 20N
Q1013	B C 20M
Q1014	B C 20N
Q1015	B C 20N
Q1101	B C 10M
Q1301	B C 17N
Q1302	B C 16N
Q1401	B C 10O
Q1402	B C 10O
Q1951	B C 17O
Q1952	B C 17O

RESISTOR

R1	B	C	8F
R2	B	C	7F
R3	B	C	8F
R4	B	C	8F
R5	B	C	8H
R6	B	C	8H
R7	B	C	9H
R8	B	C	9H
R9	B	C	9H
R10	B	C	6G
R11	B	C	5F
R12	B	C	7F
R13	B	C	7F
R14	B	C	7F
R15	B	C	7F
R16	B	C	7F
R30	B	C	8F
R31	B	C	7I
R34	B	C	10F
R35	B	C	6H
R36	B	C	9F
R37	B	C	8F
R38	B	C	9I
R40	B	C	6F
R41	B	C	6E
R42	B	C	8D
R43	B	C	7H
R44	B	C	8D
R45	B	C	9G
R46	B	C	8I
R47	B	C	8H
R48	B	C	9D
R49	B	C	14I
R50	B	C	14J
R51	B	C	14I
R52	B	C	14J
R53	B	C	16I
R54	B	C	8F
R55	B	C	8F
R56	B	C	7F
R57	B	C	5I
R58	B	C	5H
R59	B	C	5H
R60	B	C	5E
R61	B	C	8H
R62	B	C	7D
R63	B	C	7D
R64	B	C	5D
R65	B	C	7D
R66	B	C	9E
R67	B	C	5I
R68	B	C	5H
R101	B	C	13J
R102	B	C	14J
R103	B	C	13J
R104	B	C	13K
R105	B	C	14K
R106	B	C	13I
R107	B	C	14J
R108	B	C	14I
R109	B	C	13I
R110	B	C	12H
R111	B	C	19E
R251	B	C	6I
R252	B	C	6I
R253	B	C	20G
R254	B	C	19A
R255	B	C	18F
R256	B	C	19E
R257	B	C	7E
R258	B	C	5E
R259	B	C	6E
R260	B	C	6E
R261	B	C	19G
R262	B	C	20F
R263	B	C	20E
R264	B	C	21E
R265	B	C	18G
R266	B	C	21B
R267	B	C	20G
R268	B	C	6M
R269	B	C	6L
R270	B	C	6L
R271	B	C	6M
R272	B	C	7M
R273	B	C	7M
R274	B	C	7M
R275	B	C	

REF.NO.	LOCATION
R276	B C 20A
R277	B C 19B
R279	B C 21B
R280	B C 7E
R281	B C 7E
R282	B C 8E
R283	B C 7E
R284	B C 8E
R285	B C 6F
R286	B C 5F
R287	B C 6F
R288	B C 6F
R289	B C 6E
R290	A D 18G
R301	B C 13O
R302	B C 13P
R303	B C 7I
R306	B C 7J
R307	B C 7I
R308	B C 7J
R309	B C 7J
R310	B C 7J
R312	B C 8J
R313	B C 8J
R314	B C 8J
R315	B C 8J
R316	B C 6M
R317	B C 7M
R318	B C 6M
R319	B C 6N
R320	B C 6N
R321	B C 6N
R322	B C 7N
R323	B C 7M
R324	B C 7M
R325	B C 7M
R326	B C 7L
R327	B C 7L
R328	B C 7M
R329	B C 7N
R330	B C 8N
R331	B C 7N
R332	B C 7N
R339	B C 7L
R340	B C 6I
R341	B C 5I
R342	B C 6M
R344	B C 7J
R401	B C 12N
R402	B C 13M
R403	B C 12M
R404	B C 12N
R405	B C 12M
R406	B C 12M
R408	B C 13M
R409	B C 13M
R410	B C 13M
R411	B C 14L
R412	B C 14M
R413	B C 14M
R414	B C 15M
R415	B C 15M
R416	B C 15M
R417	B C 15N
R418	B C 15N
R419	B C 15N
R420	B C 15O
R421	B C 15O
R422	B C 14O
R423	B C 14O
R424	B C 14O
R425	B C 14O
R426	B C 14O
R427	B C 15O
R428	B C 14O
R429	B C 14O
R430	B C 14O
R431	B C 13P
R432	B C 12N
R433	B C 13N
R434	B C 13E
R435	B C 13E
R436	B C 12E
R437	B C 12E
R438	B C 12P
R440	B C 12O
R441	B C 12O
R451	B C 11N
R452	B C 11N
R453	B C 11N
R454	B C 11N
R455	B C 12O
R456	B C 13O
R481	B C 13N
R482	B C 12N
R501	B C 16J
R502	B C 16J
R503	B C 16J
R504	B C 16J
R505	B C 16J
R506	B C 15K
R507	B C 15K
R508	B C 17J
R516	B C 16J
R517	B C 16J
R518	B C 17J
R519	B C 17J
R520	B C 16J
R521	B C 16I
R522	B C 18I
R523	B C 16J
R524	B C 17I
R525	B C 18J
R701	B C 14D
R702	B C 14D
R703	B C 14D
R704	B C 14E
R705	B C 12B
R706	B C 12B
R707	B C 12B
R708	B C 12B
R709	B C 20E
R710	B C 20E
R711	B C 20F
R712	B C 20F
R713	B C 19G
R714	B C 20G
R715	B C 19G
R716	B C 19G
R717	B C 18G
R718	B C 18H
R719	B C 18G
R720	B C 21E
R721	B C 21E
R722	B C 21E
R723	B C 19G
R724	B C 6J
R725	B C 6J
R726	B C 6I
R727	B C 21F
R728	B C 20B
R729	B C 21B

REF.NO.	LOCATION
R730	B C 17F
R731	B C 17F
R732	B C 7O
R733	B C 17F
R734	B C 16C
R735	B C 16D
R736	B C 17E
R737	B C 14D
R738	B C 17F
R739	B C 16F
R740	B C 16F
R741	B C 16F
R742	B C 16F
R743	B C 17F
R744	B C 16G
R745	B C 14F
R746	B C 14F
R747	B C 14F
R748	B C 14F
R749	B C 14F
R750	B C 12C
R751	B C 12C
R752	B C 17G
R753	B C 12C
R754	B C 14F
R755	B C 14E
R756	B C 14F
R757	B C 14D
R758	B C 17D
R759	B C 17D
R760	B C 21E
R761	B C 14F
R762	B C 17C
R763	B C 17C
R764	B C 22E
R765	B C 13C
R768	B C 1C
R769	B C 12D
R770	B C 13D
R771	B C 13C
R772	B C 17F
R773	B C 11C
R774	B C 14D
R775	B C 14C
R776	B C 14C
R777	B C 14C
R778	B C 3A
R779	B C 2A
R780	B C 7B
R781	B C 7B
R782	B C 7B
R783	B C 4D
R784	B C 18D
R785	B C 16B
R786	A D 11E
R787	B C 8C
R788	B C 18D
R789	B C 4E
R790	B C 12C
R791	B C 12C
R792	B C 17E
R793	B C 17F
R794	B C 17E
R795	B C 17E
R796	B C 15G
R797	B C 15G
R798	B C 16G
R799	B C 17G
R800	B C 2B
R801	B C 2B
R802	B C 3B
R803	B C 3B
R804	B C 3B
R805	B C 21E
R806	B C 21E
R807	B C 12C
R808	B C 16G
R809	B C 15L
R810	B C 17D
R811	B C 14E
R812	B C 12C
R813	B C 17D
R814	B C 12B
R815	B C 13B
R816	B C 12C
R817	B C 12C
R818	B C 13B
R819	B C 16C
R820	B C 14G
R821	B C 14G
R822	B C 22B
R823	B C 22C
R824	B C 16C
R825	B C 16E
R826	B C 16C
R827	B C 16C
R828	B C 6P
R829	B C 16C
R830	B C 17F
R901	B C 1M
R902	B C 2L
R903	B C 2M
R904	B C 2K
R905	B C 2L
R906	B C 2K
R907	B C 2L
R908	B C 4K
R909	B C 3L
R910	B C 3M
R911	B C 3L
R912	B C 3L
R951	B C 4K
R952	B C 5I
R953	B C 4I
R954	B C 4J
R955	B C 4F
R957	B C 1G
R958	B C 2E
R959	B C 2D
R960	B C 2E
R961	B C 2D
R962	B C 1E
R963	B C 3E
R964	B C 2D
R965	B C 2E
R966	B C 2E
R967	B C 2G
R968	B C 2F
R970	B C 1C
R972	B C 3E
R975	B C 2G
R976	B C 3E
R977	B C 1F
R978	B C 11M
R979	B C 11L
R1001	B C 19N
R1002	B C 19N
R1003	B C 19O
R1004	B C 20O
R1005	B C 21O
R1006	B C
R1955	B C 16O

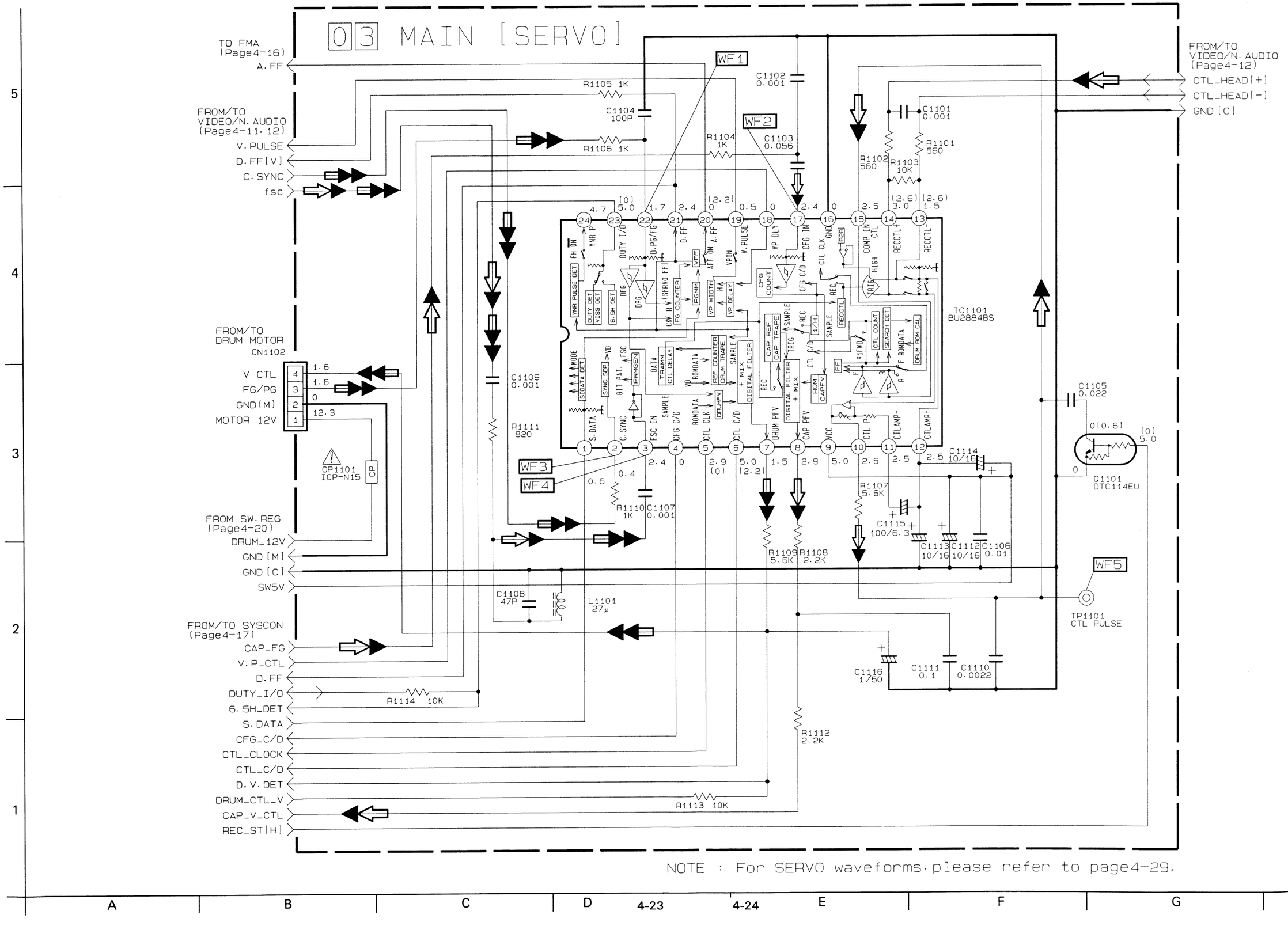
TEST POINT

TP106	A	D	11L
TP111	A	D	9O
TP254	A	D	20B
TP255	A	D	18K
TP333	A	D	7L
TP334	A	D	9N
TP553	A	D	15L
TP701	A	D	17D
TP702	A	D	16G
TP901	A	D	2C
TP1101	A	D	7K
TPGND	A	D	1C

OTHERS

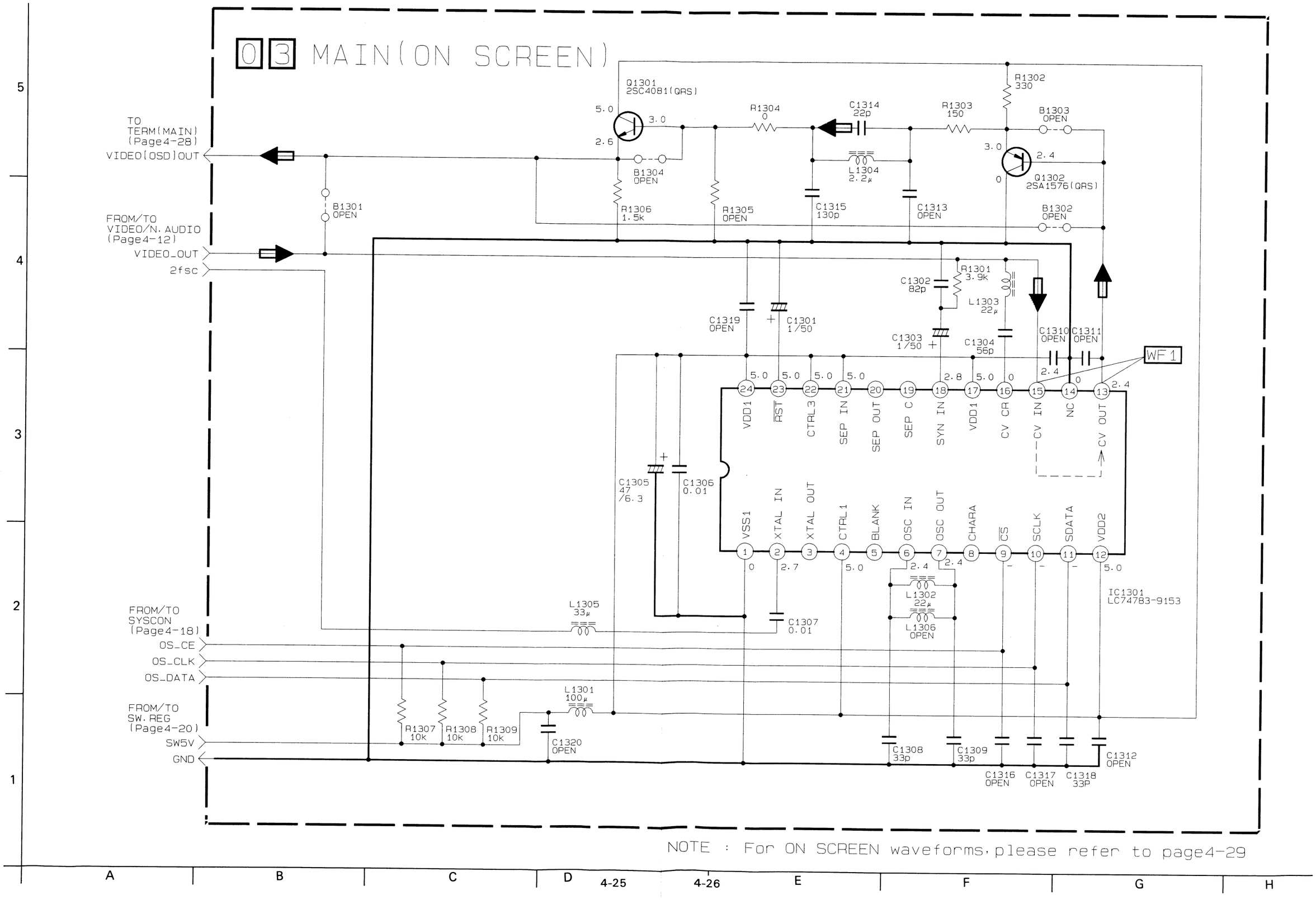
CF701	A	D	14D
FL254	A	D	6F
IF-UNIT	A	D	21L
JP1001	A	D	20G
JP1002	A	D	20D
K901	A	D	2K
LF901	A	D	2P
LF902	A	D	4O
PC901	A	D	5L
PS701	A	D	9B
PS702	A	D	15B
T301	A	D	7M
T302	A	D	8N
T901	A	D	1K
T1001	A	D	21P
T1002	A	D	20J
TH701	A	D	4D
TH702	A	D	18C
TU1001	A	D	20P
X1	A	D	8I
X701	A	D	14D

4.11 SERVO SCHEMATIC DIAGRAM

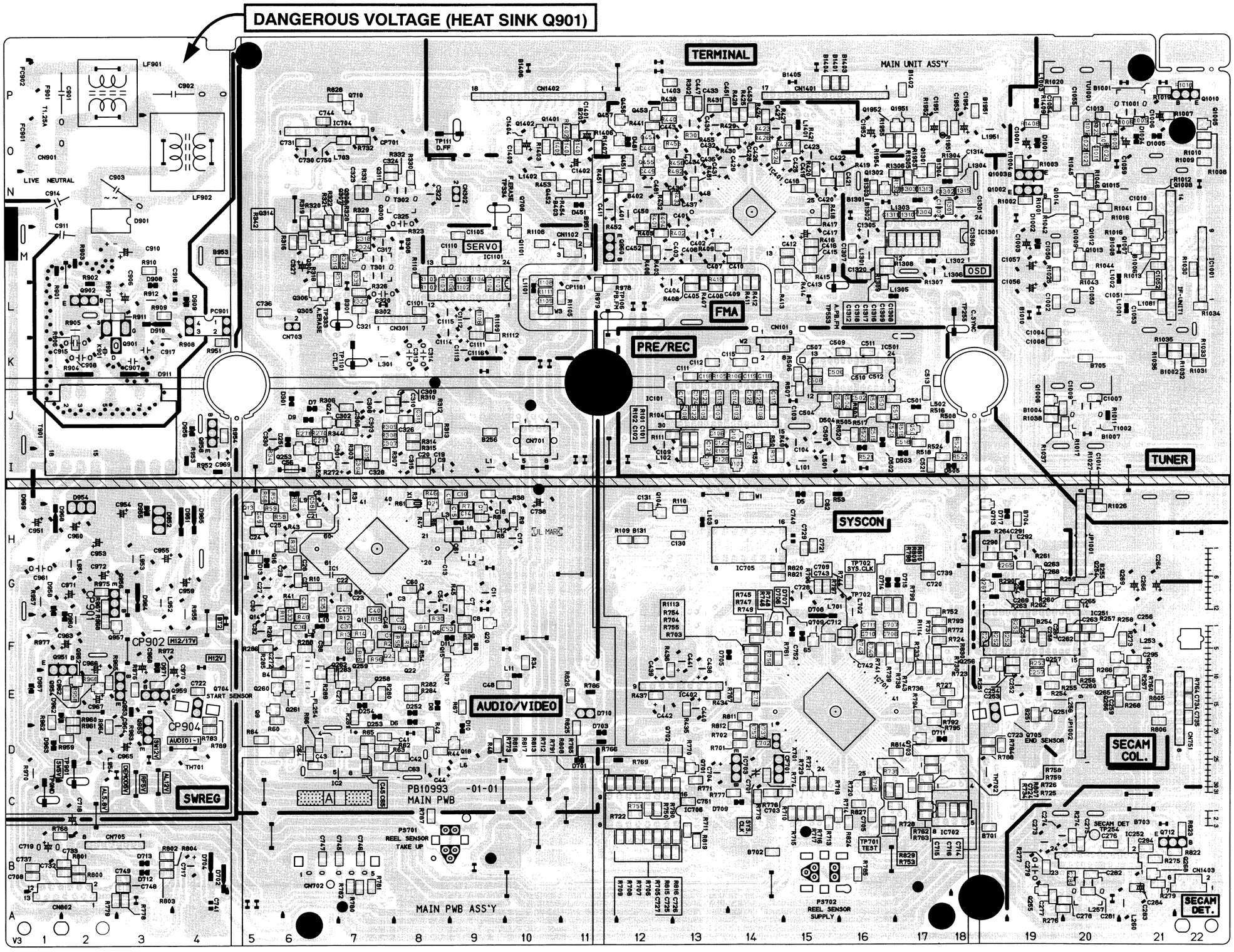


NOTE : For SERVO waveforms, please refer to page4-29.

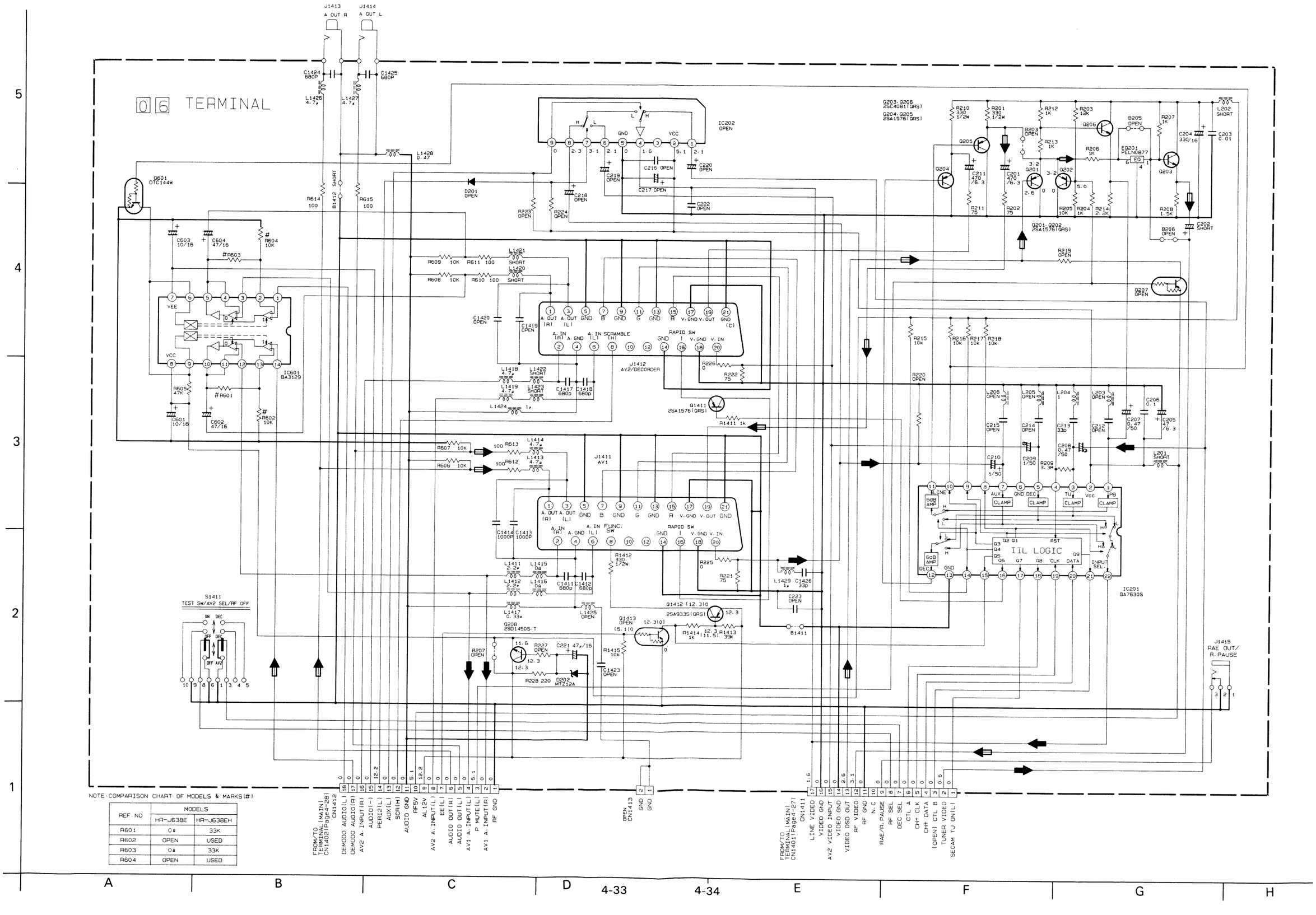
4.12 ON SCREEN SCHEMATIC DIAGRAM



4.14 MAIN AND A/C HEAD CIRCUIT BOARDS



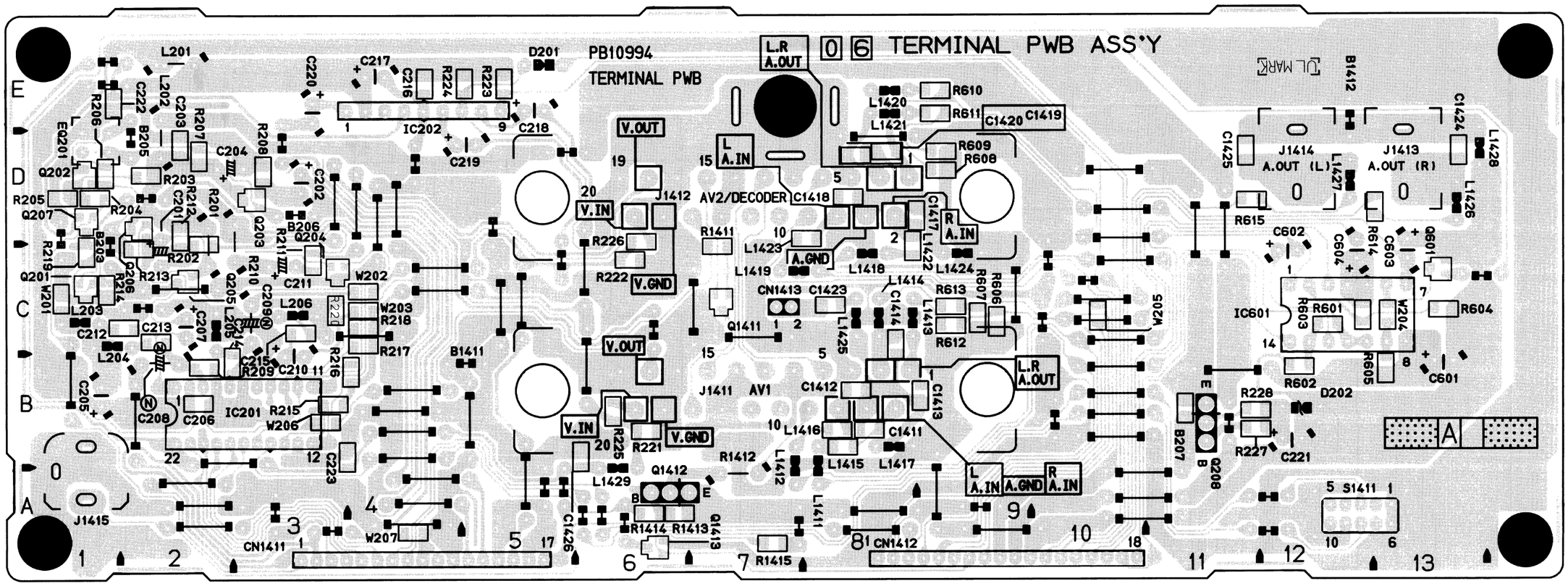
4.15 TERMINAL SCHEMATIC DIAGRAM



NOTE: COMPARISON CHART OF MODELS & MARKS (#)

REF. NO	MODELS	
	HR-J638E	HR-J638EH
R601	0Ω	33K
R602	OPEN	USED
R603	0Ω	33K
R604	OPEN	USED

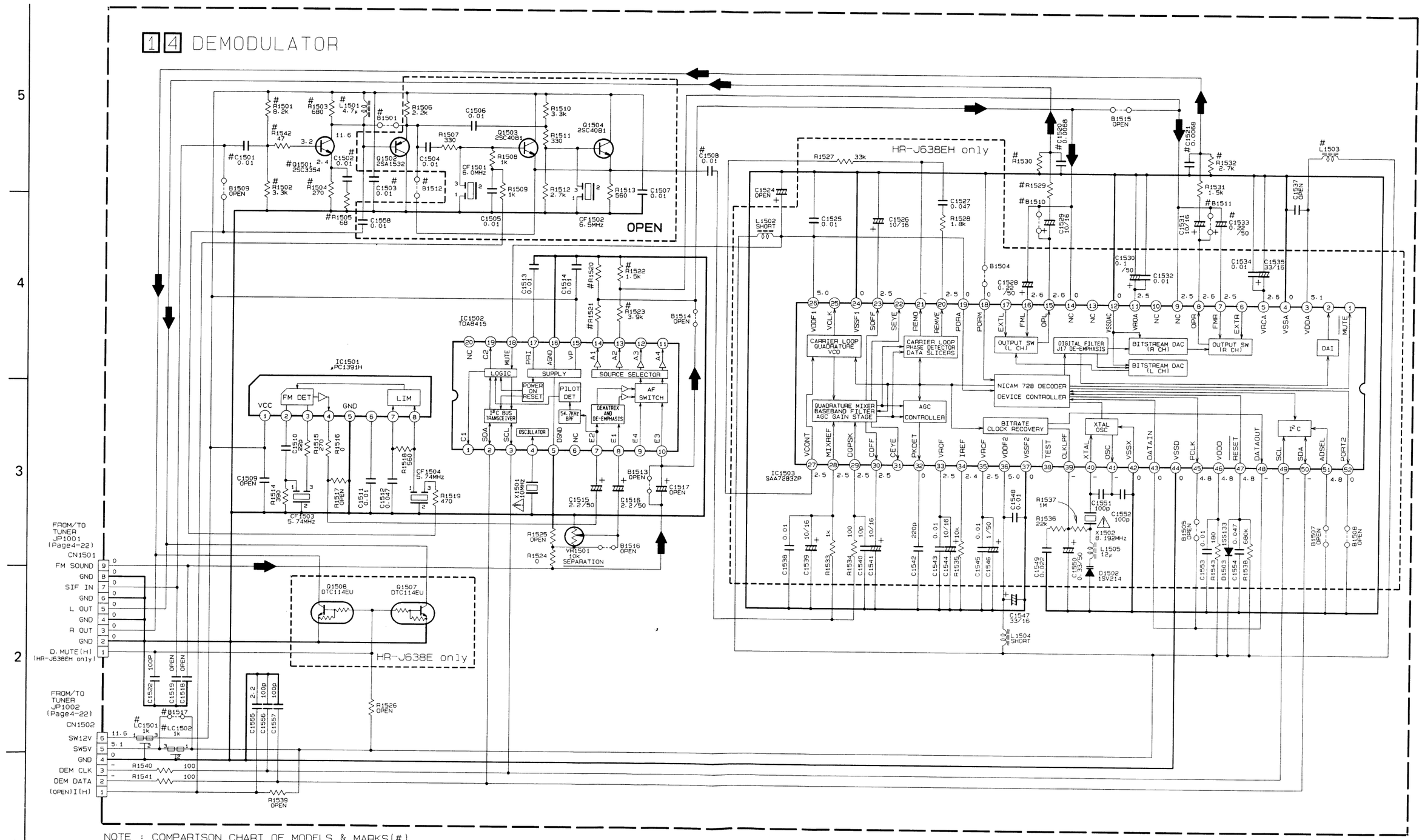
4.16 TERMINAL CIRCUIT BOARD



COMPONENT PARTS LOCATION GUIDE <TERMINAL PWB>

REF.No.	LOCATION		
CAPACITOR			
C201	A	D	2D
C202	A	D	3D
C203	B	C	2D
C204	A	D	2D
C205	A	D	1B
C206	B	C	2B
C207	A	D	2C
C208	A	D	2B
C209	A	D	3C
C210	A	D	3B
C211	A	D	3C
C212	B	C	2C
C213	B	C	2C
C214	B	C	2B
C215	B	C	3C
C216	B	C	4E
C217	A	D	4E
C218	A	D	5E
C219	A	D	4D
C220	A	D	3E
C221	A	D	12B
C222	B	C	1E
C223	B	C	3B
C601	A	D	13B
C602	A	D	12C
C603	A	D	13C
C604	A	D	12C
C1411	B	C	8B
C1412	B	C	8B
C1413	B	C	9B
C1414	B	C	8C
C1417	B	C	8D
C1418	B	C	8D
C1419	B	C	8D
C1420	B	C	8D
C1423	B	C	8C
C1424	B	C	13D
C1425	B	C	11D
C1426	B	C	6B
CONNECTOR			
CN1411	A	D	3A
CN1412	A	D	8A
CN1413	A	D	7C
DIODE			
D201	A	D	5E
D202	A	D	12B
IC			
IC201	A	D	2B
IC202	A	D	3E
IC601	A	D	12C
COIL			
L201	A	D	2E
L202	A	D	2E
L203	A	D	1C
L204	A	D	1C
L205	A	D	2C
L206	A	D	3C
L1411	A	D	8B
L1412	A	D	7B
L1413	A	D	8C
L1414	A	D	8C
L1415	B	C	8B
L1416	B	C	8B
L1417	A	D	8B
L1418	A	D	8C
L1419	A	D	7C
L1420	A	D	8E
L1421	A	D	8E
L1422	B	C	8C
L1423	B	C	8C
L1424	A	D	9C
L1425	A	D	8C
L1426	A	D	13D
L1427	A	D	12D
L1428	A	D	13D
L1429	A	D	6A
TRANSISTOR			
Q201	B	C	1C
Q202	B	C	1D
Q203	B	C	3D
Q204	B	C	3C
Q205	B	C	2C
Q206	B	C	2D
Q207	B	C	1D
Q208	A	D	11B
Q601	B	C	13C
Q1411	B	C	7C
Q1412	A	D	6A
Q1413	B	C	6A
RESISTOR			
R201	A	D	2C
R202	B	C	2C
R203	B	C	2D
R204	B	C	1D
R205	B	C	1D
R206	B	C	1D
R207	B	C	2D
R208	B	C	3D
R209	B	C	2B
R210	A	D	3C
R211	B	C	3C
R212	B	C	2D
R213	B	C	2C
R214	B	C	1C
R215	B	C	3B
R216	B	C	4B
R217	B	C	4C
R218	B	C	4C
R219	B	C	1C
R220	B	C	3C
R221	B	C	6B
R222	B	C	6C
R223	B	C	5E
R224	B	C	5E
R225	B	C	6B
R226	B	C	6C
R227	B	C	11B
R228	B	C	11B
R601	B	C	12C
R602	B	C	12B
R603	B	C	12C
R604	B	C	13C
R605	B	C	13B
R606	B	C	9C
R607	B	C	9C
R608	B	C	9D
R609	B	C	9D
R610	B	C	9E
R611	B	C	9E
R612	B	C	9C
R613	B	C	9C
R614	B	C	13D
R615	B	C	11D
R1411	B	C	7C
R1412	A	D	7A
R1413	B	C	6A
R1414	B	C	6A
R1415	B	C	7A
OTHERS			
EQ201	A	D	1D
J1411	A	D	7B
J1412	A	D	7D
J1413	A	D	13D
J1414	A	D	12D
J1415	A	D	1A
S1411	A	D	12A

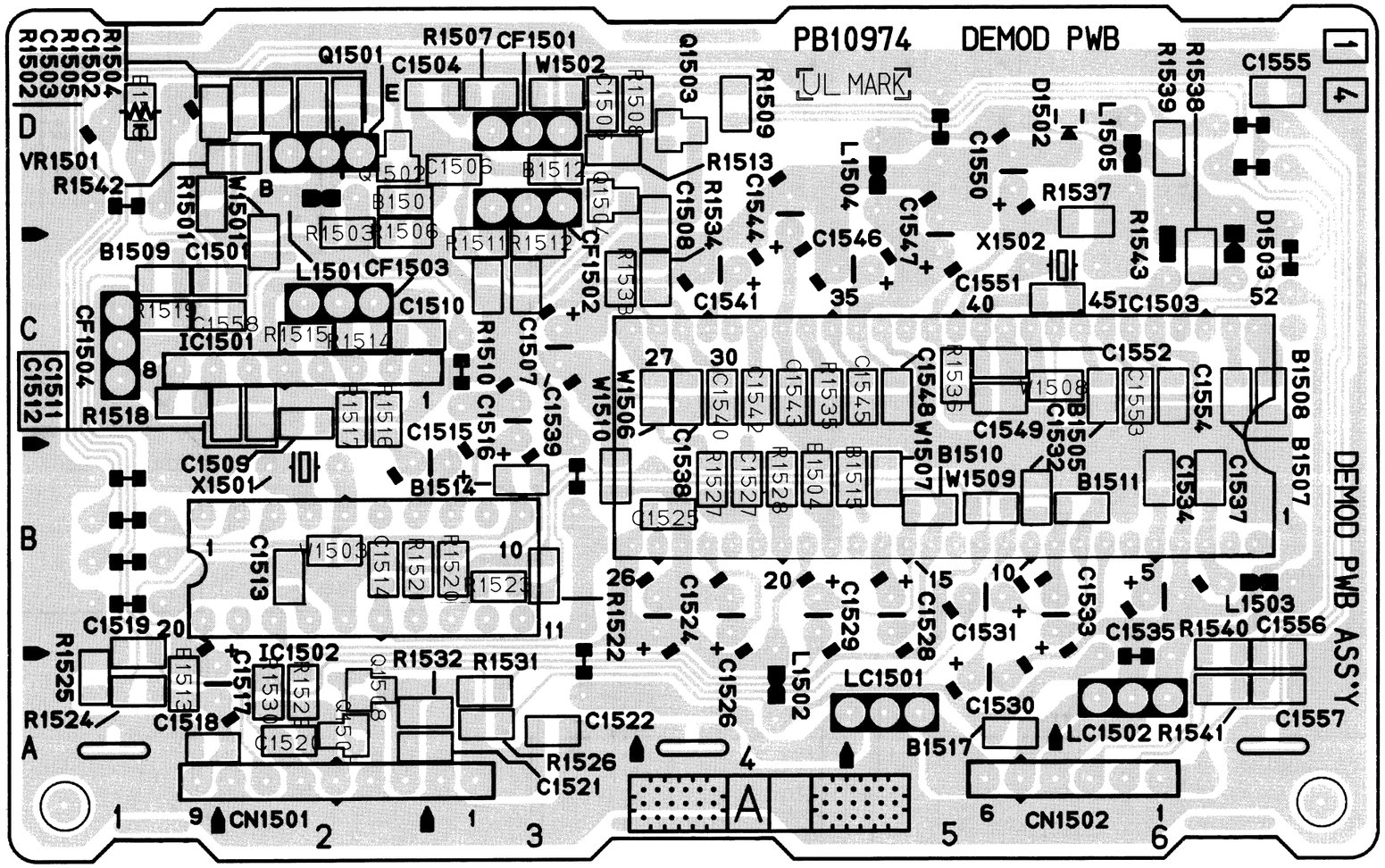
4.17 DEMODULATOR SCHEMATIC DIAGRAM



NOTE : COMPARISON CHART OF MODELS & MARKS(#)

REF. NO.		R1501~R1505	C1501~C1503	R1520	R1522	R1529	R1530	R1532	R1542	C1508	C1520	C1521	C1533	LC1501	LC1502	B1501	Q1501	B1510	B1511	B1517	L1503	R1521	R1523	B1501	B1512
MODEL	HR-J638E	OPEN	OPEN	3.9KΩ	3.9KΩ	0Ω	OPEN	OPEN	OPEN	OPEN	OPEN	OPEN	OPEN	BUS WIRE	OPEN	OPEN	USED	USED	USED	USED	OPEN	100Ω	100Ω	OPEN	OPEN
	HR-J638EH	USED	USED	2.2KΩ	2.2KΩ	2.2KΩ	USED	USED	USED	USED	USED	USED	USED	USED	USED	USED	OPEN	OPEN	OPEN	OPEN	BUS WIRE	2.7KΩ	2.7KΩ	USED	USED

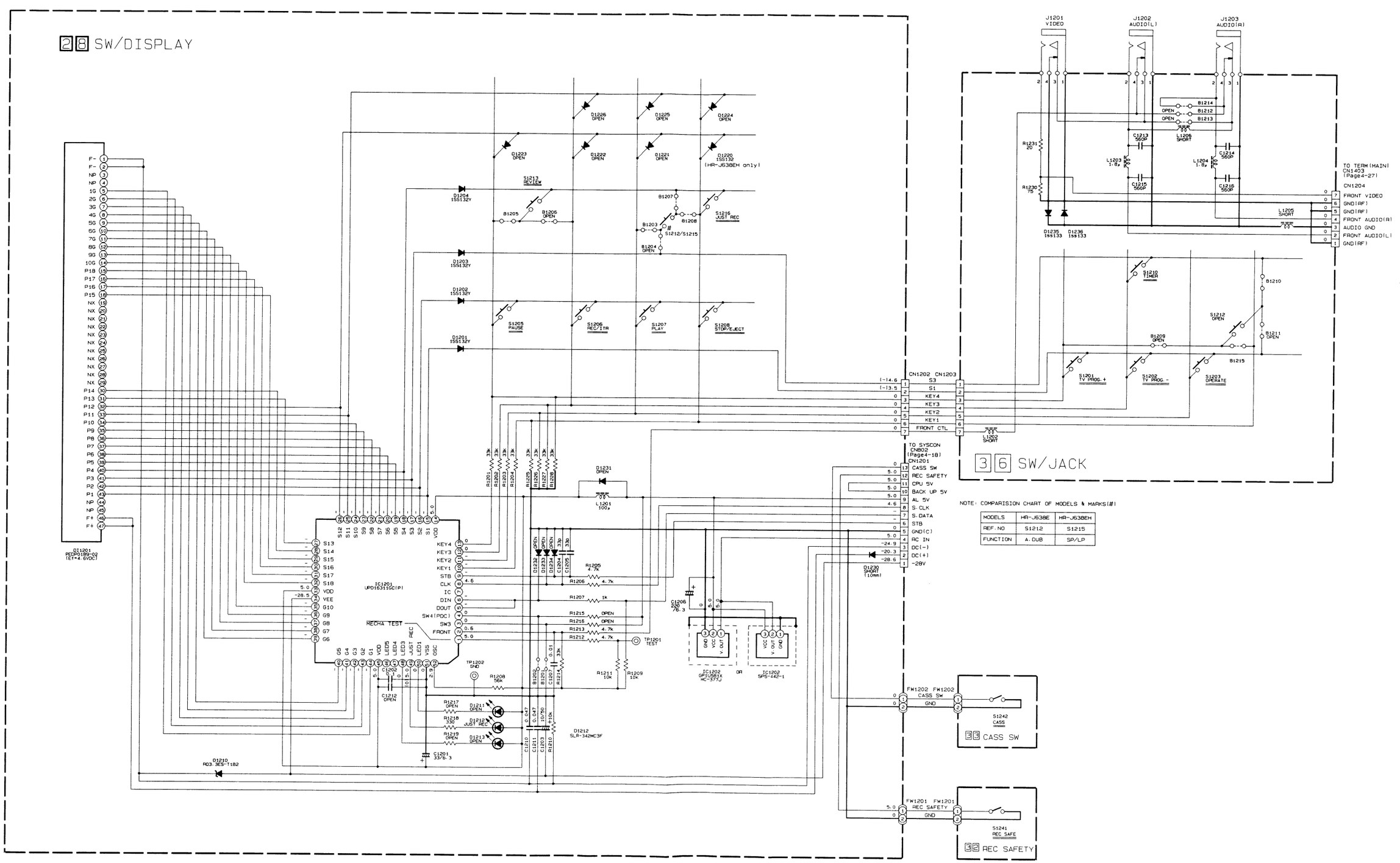
4.18 DEMODULATOR CIRCUIT BOARD



COMPONENT PARTS LOCATION GUIDE
<DEMOD PWB>

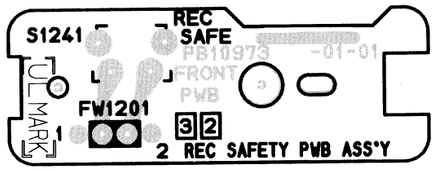
REF.NO.	LOCATION	REF.NO.	LOCATION
CAPACITOR		R1502	B C 1D
C1501	B C 2C	R1503	B C 2D
C1502	B C 2D	R1504	B C 2D
C1503	B C 2D	R1505	B C 2D
C1504	B C 3D	R1506	B C 2D
C1505	B C 3D	R1507	B C 3D
C1506	B C 3D	R1508	B C 4D
C1507	B C 3C	R1509	B C 4D
C1508	B C 4D	R1510	B C 3C
C1509	B C 2C	R1511	B C 3C
C1510	B C 2C	R1512	B C 3C
C1511	B C 2C	R1513	B C 3D
C1512	B C 2C	R1514	B C 2C
C1513	B C 2B	R1515	B C 2C
C1514	B C 2B	R1516	B C 2C
C1515	A D 3B	R1517	B C 2C
C1516	A D 3C	R1518	B C 1C
C1517	A D 2A	R1519	B C 1C
C1518	B C 1A	R1520	B C 3B
C1519	B C 1B	R1521	B C 2B
C1520	B C 2A	R1522	B C 3B
C1521	B C 2A	R1523	B C 3B
C1522	B C 3A	R1524	B C 1A
C1524	A D 4B	R1525	B C 1A
C1525	B C 4B	R1526	B C 3A
C1526	A D 4B	R1527	B C 4B
C1527	B C 4B	R1528	B C 4B
C1528	A D 5B	R1529	B C 2A
C1529	A D 4B	R1530	B C 2A
C1530	A D 5A	R1531	B C 3A
C1531	A D 5B	R1532	B C 2A
C1532	B C 5B	R1533	B C 3C
C1533	A D 6B	R1534	B C 4C
C1534	B C 6B	R1535	B C 4C
C1535	A D 6B	R1536	B C 5C
C1537	B C 6B	R1537	B C 6D
C1538	B C 4C	R1538	B C 6C
C1539	A D 3C	R1539	B C 6D
C1540	B C 4C	R1540	B C 6A
C1541	A D 4C	R1541	B C 6A
C1542	B C 4C	R1542	B C 2D
C1543	B C 4C	R1543	A D 6C
C1544	A D 4D	OTHERS	
C1545	B C 5C	CF1501	A D 3D
C1546	A D 5C	CF1502	A D 3D
C1547	A D 5C	CF1503	A D 2C
C1548	B C 5C	CF1504	A D 1C
C1549	B C 5C	LC1501	A D 5A
C1550	A D 5D	LC1502	A D 6A
C1551	B C 6C	VR1501	A D 1D
C1552	B C 5C	X1501	A D 2B
C1553	B C 6C	X1502	A D 6C
C1554	B C 6C		
C1555	B C 7D		
C1556	B C 7A		
C1557	B C 7A		
C1558	B C 2C		
CONNECTOR			
CN1501	A D 3A		
CN1502	A D 6A		
DIODE			
D1502	B C 6D		
D1503	A D 6C		
IC			
IC1501	A D 3C		
IC1502	A D 1B		
IC1503	A D 6B		
COIL			
L1501	A D 2D		
L1502	A D 4A		
L1503	A D 7B		
L1504	A D 5D		
TRANSISTOR			
Q1501	A D 2D		
Q1502	B C 2D		
Q1503	B C 4D		
Q1504	B C 3D		
Q1507	B C 2A		
Q1508	B C 2A		
RESISTOR			
R1501	B C 1D		

4.19 SW/DISPLAY, SW/JACK, REC SAFETY AND CASSETTE SW SCHEMATIC DIAGRAM

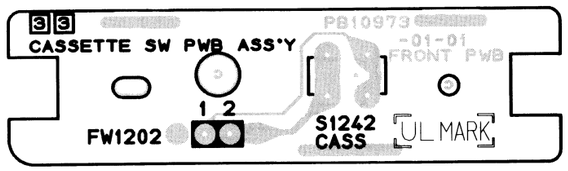


4.20 SW/DISPLAY, SW/JACK, REC SAFETY AND CASSETTE SW CIRCUIT BOARDS

–REC SAFETY–



–CASSETTE SW–

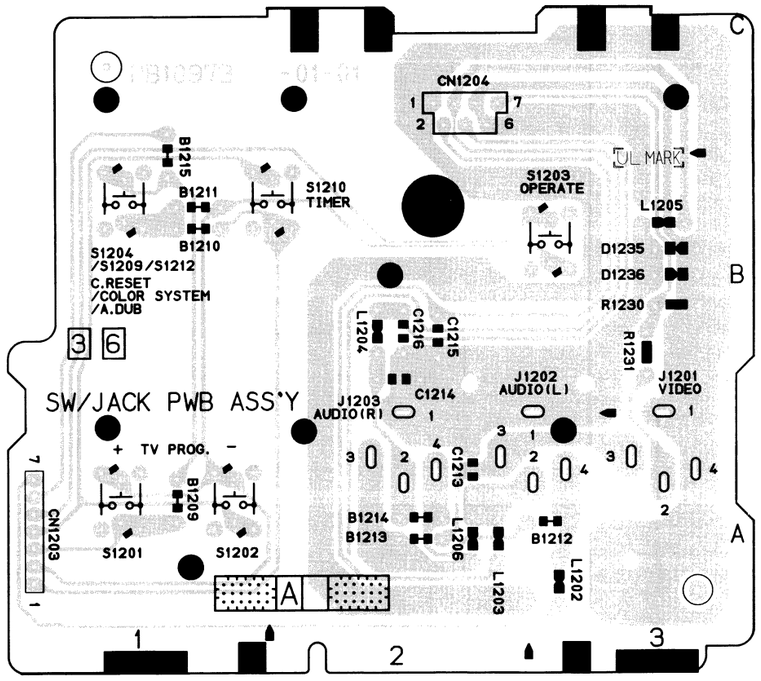


–SW/JACK–

COMPONENT PARTS LOCATION GUIDE <SW/JACK PWB>

REF.No.	LOCATION		
CAPACITOR			
C1213	A	D	2A
C1214	A	D	2B
C1215	A	D	2B
C1216	A	D	2B
CONNECTOR			
CN1203	A	D	1A
CN1204	A	D	2C
DIODE			
D1235	A	D	3B
D1236	A	D	3B
COIL			
L1202	A	D	3A
L1203	A	D	2A
L1204	A	D	2B
L1205	A	D	3B
L1206	A	D	2A
RESISTOR			
R1230	A	D	3B
R1231	A	D	3B

REF.No.	LOCATION		
OTHERS			
J1201	A	D	3A
J1202	A	D	3A
J1203	A	D	2A
S1201	A	D	1A
S1202	A	D	1A
S1203	A	D	3B
S1204	A	D	1B
S1210	A	D	2B



–SW/DISPLAY–

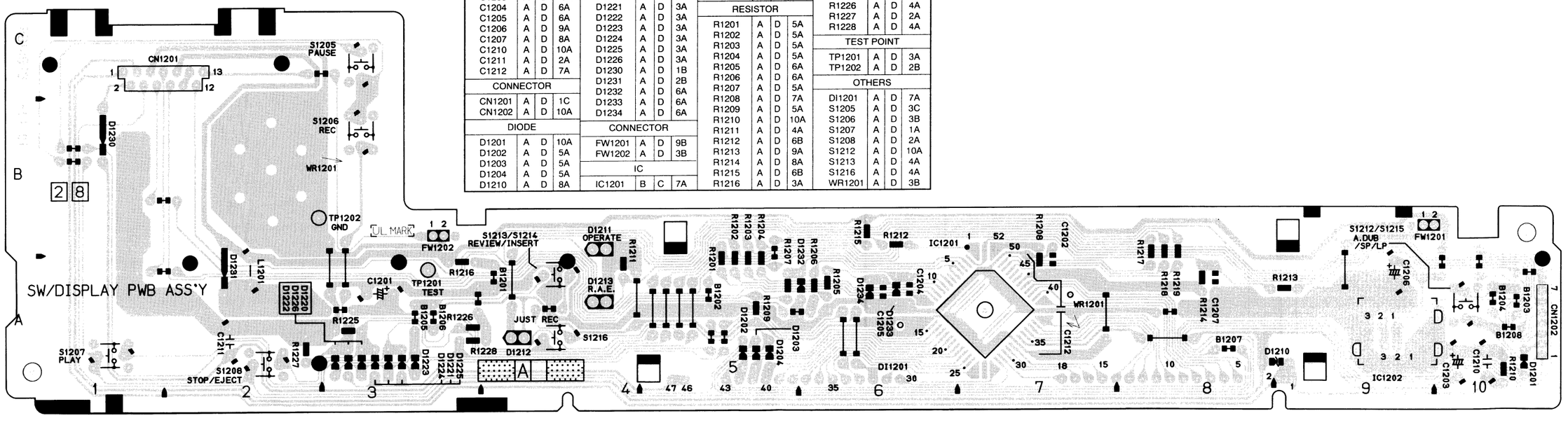
COMPONENT PARTS LOCATION GUIDE <SW/DISPLAY PWB>

REF.No.	LOCATION		
CAPACITOR			
C1201	A	D	3A
C1202	A	D	7A
C1203	A	D	10A
C1204	A	D	6A
C1205	A	D	6A
C1206	A	D	9A
C1207	A	D	8A
C1210	A	D	10A
C1211	A	D	2A
C1212	A	D	7A
CONNECTOR			
CN1201	A	D	1C
CN1202	A	D	10A
DIODE			
D1201	A	D	10A
D1202	A	D	5A
D1203	A	D	5A
D1204	A	D	5A
D1210	A	D	8A

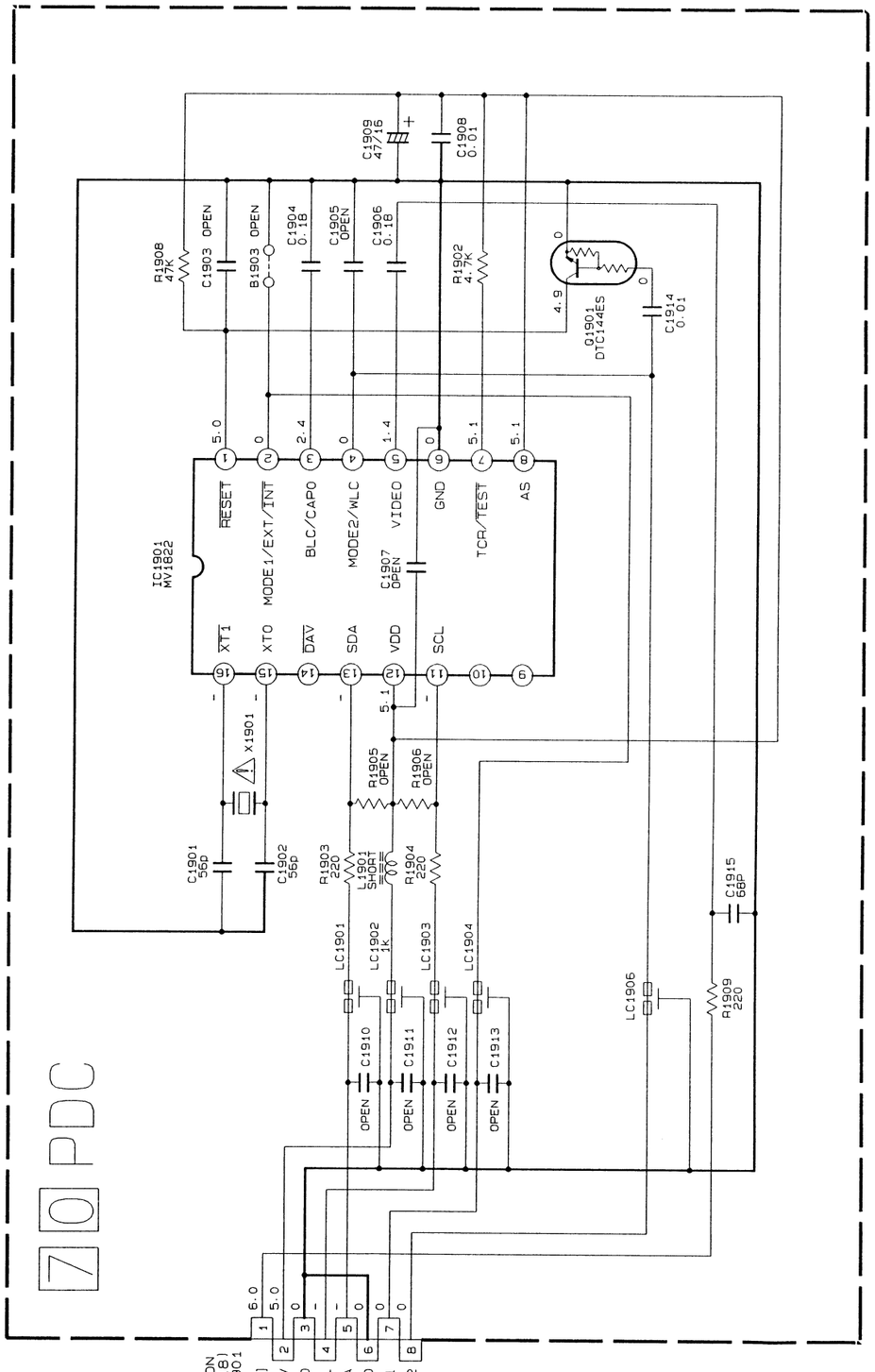
REF.No.	LOCATION		
D1211	A	D	4B
D1212	A	D	4A
D1213	A	D	4A
D1220	A	D	3A
D1221	A	D	3A
D1222	A	D	3A
D1223	A	D	3A
D1224	A	D	3A
D1225	A	D	3A
D1226	A	D	3A
D1230	A	D	1B
D1231	A	D	2B
D1232	A	D	6A
D1233	A	D	6A
D1234	A	D	6A
CONNECTOR			
FW1201	A	D	9B
FW1202	A	D	3B
IC			
IC1201	B	C	7A

REF.No.	LOCATION		
IC1202	A	D	9A
COIL			
L1201	A	D	2A
RESISTOR			
R1201	A	D	5A
R1202	A	D	5A
R1203	A	D	5A
R1204	A	D	5A
R1205	A	D	6A
R1206	A	D	6A
R1207	A	D	5A
R1208	A	D	7A
R1209	A	D	5A
R1210	A	D	10A
R1211	A	D	4A
R1212	A	D	6B
R1213	A	D	9A
R1214	A	D	8A
R1215	A	D	6B
R1216	A	D	3A

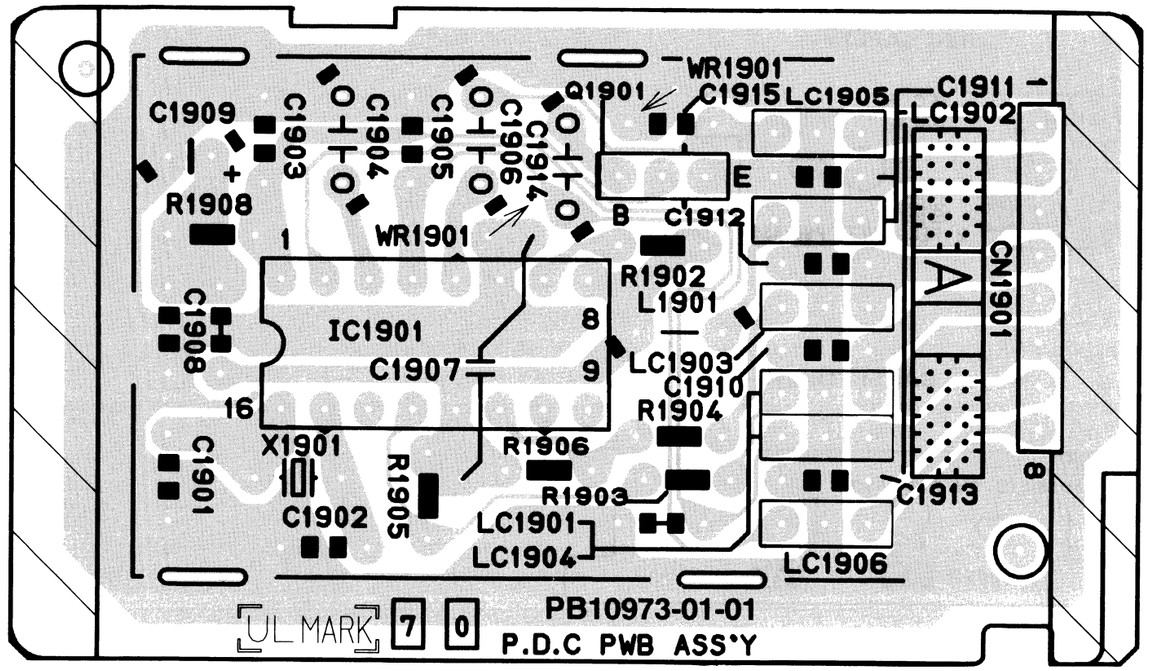
REF.No.	LOCATION		
R1217	A	D	8A
R1218	A	D	8A
R1219	A	D	8A
R1225	A	D	3A
R1226	A	D	4A
R1227	A	D	2A
R1228	A	D	4A
TEST POINT			
TP1201	A	D	3A
TP1202	A	D	2B
OTHERS			
DI1201	A	D	7A
S1205	A	D	3C
S1206	A	D	3B
S1207	A	D	1A
S1208	A	D	2A
S1212	A	D	10A
S1213	A	D	4A
S1216	A	D	4A
WR1201	A	D	3B



4.21 PDC SCHEMATIC DIAGRAM

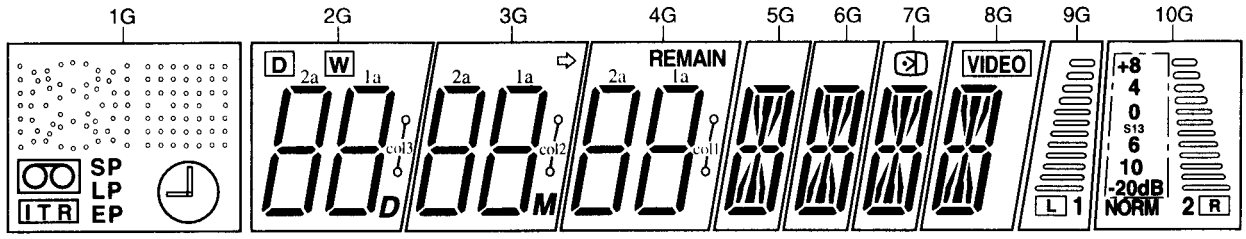


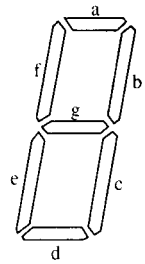
4.22 PDC CIRCUIT BOARD



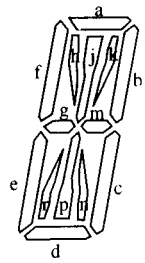
4.23 FDP GRID ASSIGNMENT AND ANODE CONNECTION

GRID ASSIGNMENT

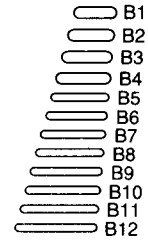




(2G ~ 4G)

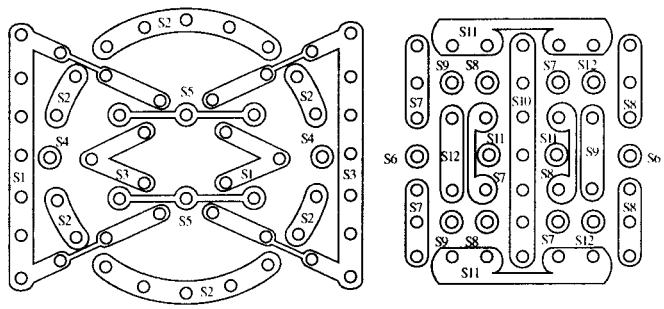


(5G ~ 8G)



(9G ,10G)

SEGMENT DESIGNATION

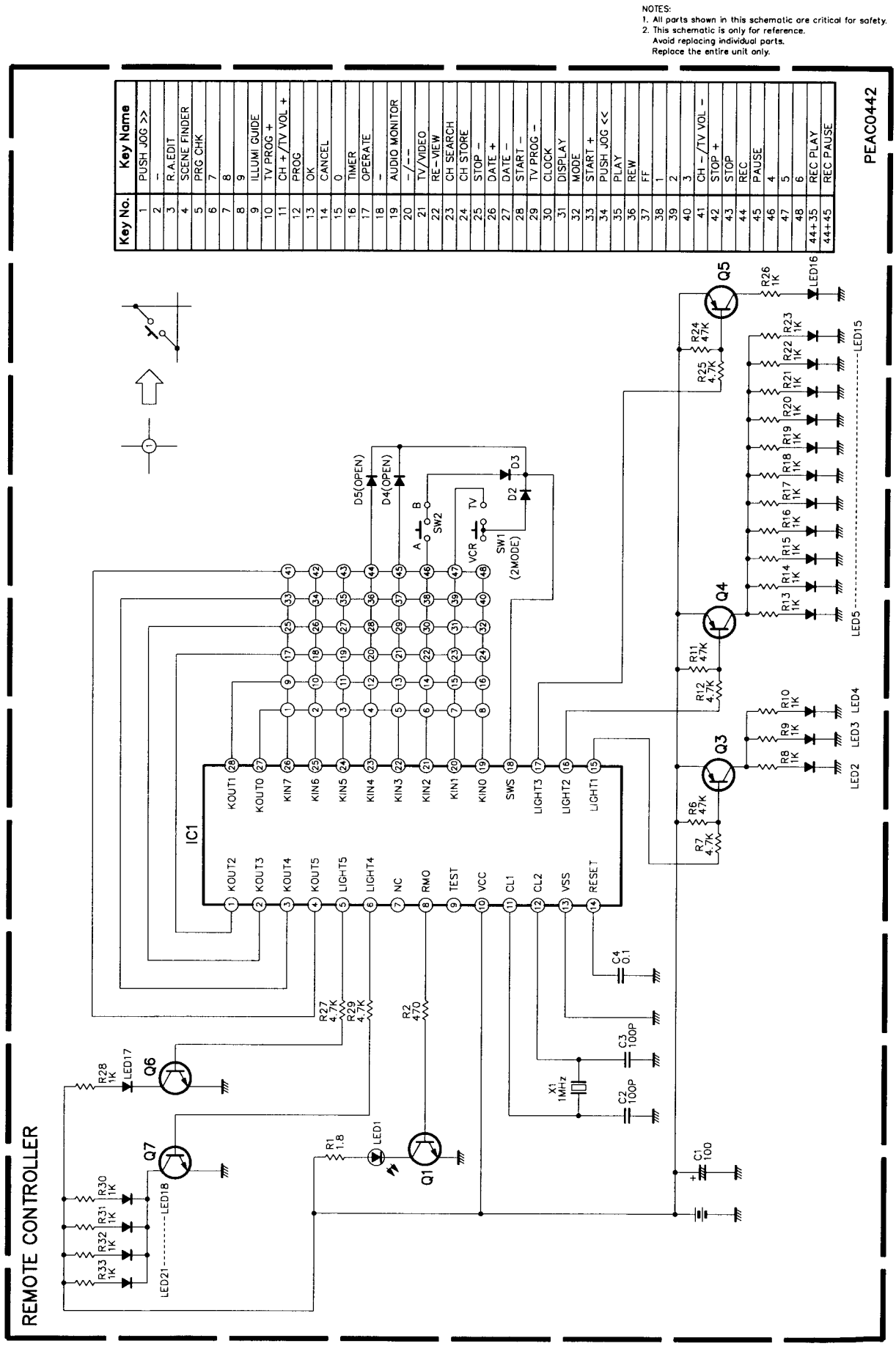


(10G)

ANODE CONNECTION

	1G	2G	3G	4G	5G	6G	7G	8G	9G	10G
P 1	S1	2a	2a	2a	a	a	a	a	B1	B1
P 2	S2	2b	2b	2b	b	b	b	b	B2	B2
P 3	S4	2f	2f	2f	f	f	f	f	B3	B3
P 4	S5	2g	2g	2g	h	h	h	h	B4	B4
P 5	S3	2c	2c	2c	j	j	j	j	B5	B5
P 6	S6	2e	2e	2e	k	k	k	k	B6	B6
P 7	S7	2d	2d	2d	g	g	g	g	B7	B7
P 8	S8	***D***	***M***	—	m	m	m	m	B8	B8
P 9	S12	1a	1a	1a	c	c	c	c	B9	B9
P10	S 9	1b	1b	1b	e	e	e	e	B10	B10
P11	S11	1f	1f	1f	n	n	n	n	B11	B11
P12	S10	1g	1g	1g	p	p	p	p	B12	B12
P13	∞	1c	1c	1c	r	r	r	r	L	R
P14	**SP**	1e	1e	1e	d	d	d	d	**1**	**2**
P15	**LP**	1d	1d	1d	—	—	—	—	—	S13
P16	◴	col3	col2	col1	—	—	—	—	—	**NORM**
P17	**EP**	D	⇨	**REMAIN**	—	—	⊳|	VIDEO	—	—
P18	ITR	W	—	—	—	—	—	—	—	—

4.24 REMOTO CONTROL SCHEMATIC DIAGRAM



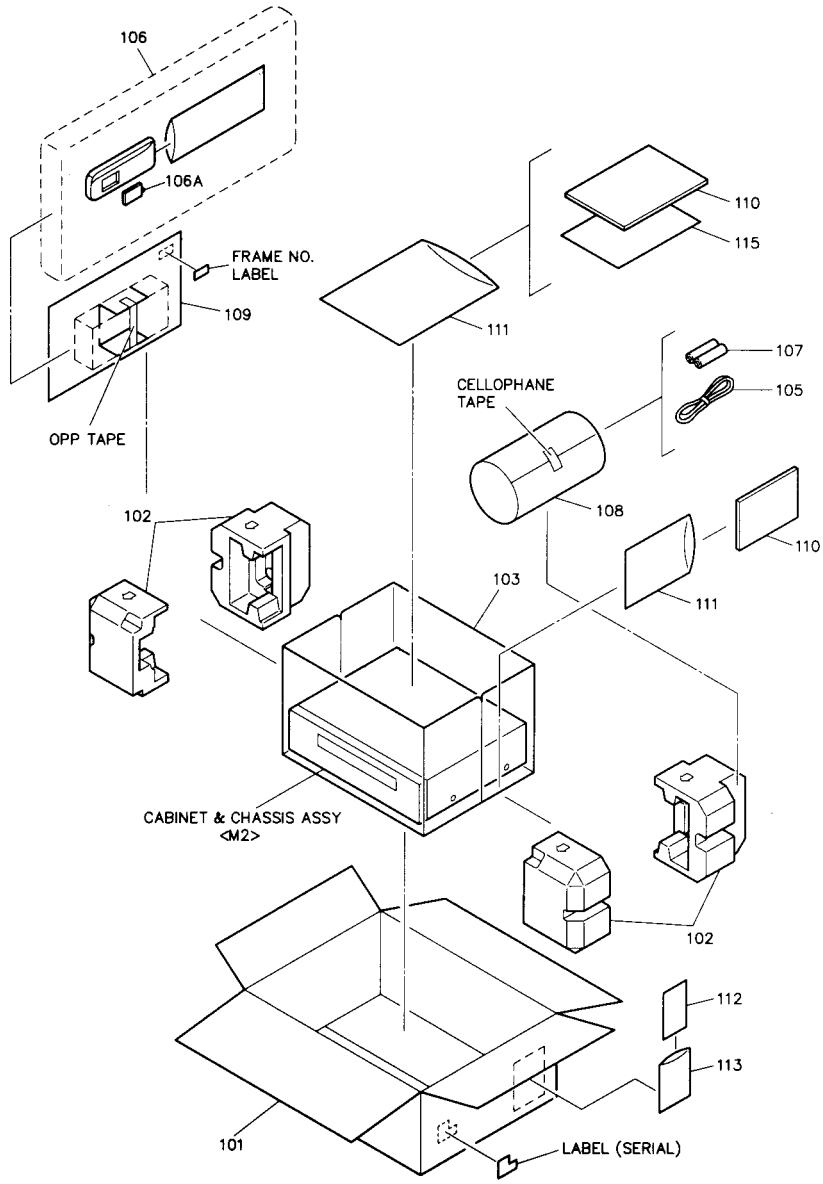
Key No.	Key Name
1	PUSH JOG >>
2	-
3	R.A.EDIT
4	SCENE FINDER
5	PRG CHK
6	7
7	8
8	9
9	ILLUMI GUIDE
10	TV PROG +
11	CH +/TV VOL +
12	PROG
13	OK
14	CANCEL
15	0
16	TIMER
17	OPERATE
18	-
19	AUDIO MONITOR
20	-/--
21	TV/VIDEO
22	RE-VIEW
23	CH SEARCH
24	CH STORE
25	STOP -
26	DATE +
27	DATE -
28	START -
29	TV PROG -
30	CLOCK
31	DISPLAY
32	MODE
33	START +
34	PUSH JOG <<
35	PLAY
36	REW
37	FF
38	1
39	2
40	3
41	CH - /TV VOL -
42	STOP +
43	STOP
44	REC
45	PAUSE
46	4
47	5
48	6
44+35	REC PLAY
44+45	REC PAUSE

SECTION 5
PARTS LIST

SAFETY PRECAUTION

Parts identified by the ⚠ symbol are critical for safety. Replace only with specified part numbers.

5.1 PACKING AND ACCESSORY ASSEMBLY <M1>



#⚠	REF No.	PART No.	PART NAME, DESCRIPTION

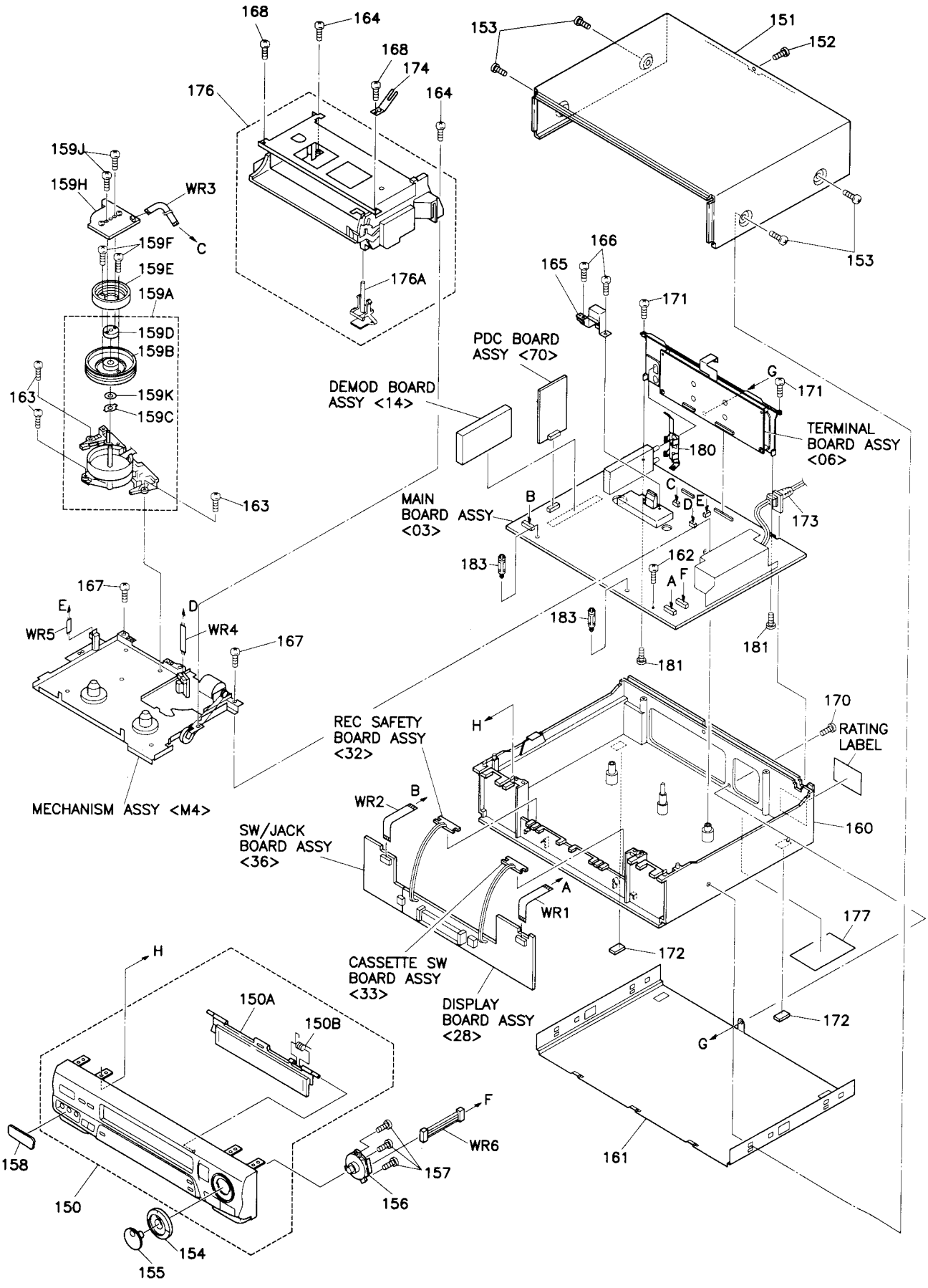
PACKING AND ACCESSORY ASSEMBLY <M1>

	101	PQ35532-25	PACKING CASE,J638E
		PQ35532-27	PACKING CASE,J638EH
	102	PQ35533A-2	CUSHION ASSEMBLY
	103	PQM30021-93	POLY(FOAM)BAG
⚠	105	PEAC0300-02	RF CABLE
⚠	106	PQ21953A-3	REMOTE CONTROLLER
	106A	PQ46614	COVER(BATTERY)
	107	R6PRPA-2ST	BATTERY,X2
	108	PQ35364	POLY BAG
	109	PQ35551	SHEET,REMOTE CONTROLLER
⚠	110	PU30425-1883	INSTRUCTIONS(ENGLISH)
⚠		PU30425-1884	INSTRUCTIONS(GERMANY)
⚠		PU30425-1885	INSTRUCTIONS(FRENCH)
⚠		PU30425-1886	INSTRUCTIONS(ITALIAN)
⚠		PU30425-1887	INSTRUCTIONS(SPANISH)
⚠		PU30425-1888	INSTRUCTIONS(DUTCH)
⚠		PU30425-1889	INSTRUCTIONS(DANISH)
⚠		PU30425-1890	INSTRUCTIONS(FINNISH)
⚠		PU30425-1891	INSTRUCTIONS(SWEDISH)
⚠		PU30425-1892	INSTRUCTIONS(NORWEGIAN)
⚠		PU30425-1893	INSTRUCTIONS(POLISH)
⚠		PU30425-1894	INSTRUCTIONS(GREEK)
	111	PQ35364-4	POLY BAG,X2
	112	BT-20135	WARRANTY CARD,J638E
	113	PQ33909	POLY BAG,J638E
	115	PQ45146-104	SHEET(SPAIN),J638EH

5.2 CABINET AND CHASSIS ASSEMBLY <M2>

BEWARE OF BOGUS PARTS

Parts that do not meet specifications may cause trouble in regard to safety and performance. We recommend that genuine JVC parts be used.



#⚠	REF No.	PART No.	PART NAME, DESCRIPTION

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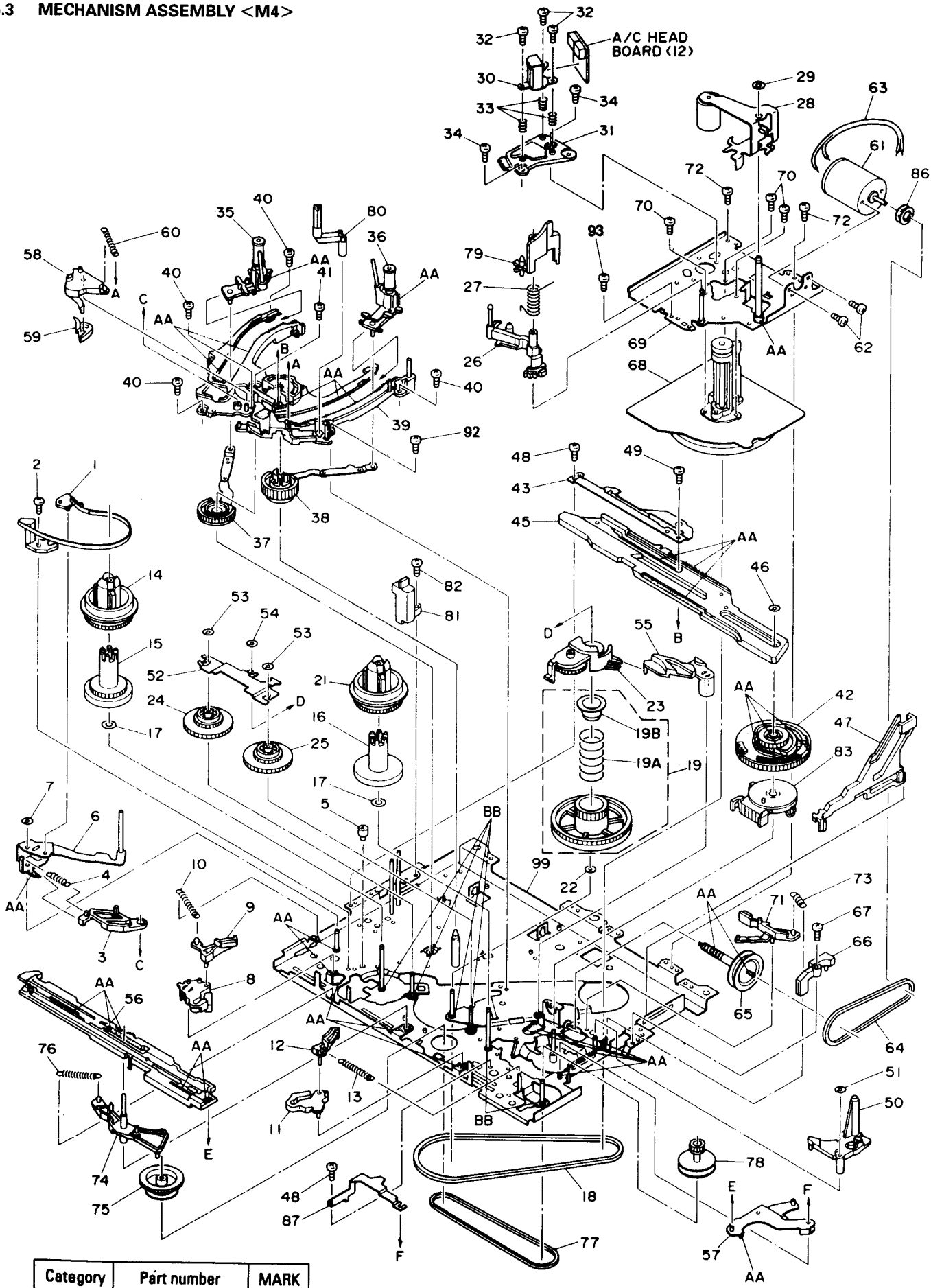
CABINET AND CHASSIS ASSEMBLY <M2>

	150	PQ11906R	FRONT PANEL ASSEMBLY,J638E
		PQ11906S	FRONT PANEL ASSEMBLY,J638EH
	150A	PQ21915-12	CASSETTE DOOR,J638E
		PQ21915-13	CASSETTE DOOR,J638EH
	150B	PQ46448	TORSION SPRING
⚠	151	PQ11676-7	TOP COVER
	152	SDSF3010M	SCREW,TOP COVER
	153	SDSF3010M	SCREW,X4 TOP COVER
	154	PQ35471	KNOB (SHUTTLE)
	155	PQ35472	KNOB (JOG)
	156	PEME0757-03	JOG SHUTTLE ASSEMBLY
	157	SDSF2608Z	SCREW,X3
	158	PQ35518	COVER (JACK)
	159A	PDM2261AC	DRUM SUB ASSEMBLY
	159B	PDM3353AW	UPPER DRUM ASSEMBLY
	159C	PDM4440A	BRUSH ASSEMBLY
	159D	PDM4345A	COLLAR ASSEMBLY
	159E	PDZ0141-2	ROTOR ASSEMBLY
	159F	SPSH2660Z	SCREW,X2
⚠	159H	PDZ0141-1-2	STATOR ASSEMBLY
	159J	SPSP2606Z	SCREW,X2
	159K	PDM4050-9	WASHER
⚠	160	PQ11666-3-14	BOTTOM CHASSIS
⚠	161	PQ11668-2	BOTTOM COVER
	162	SDSF3010Z	SCREW,MAIN BOARD
	163	SPST2608Z	SCREW,X3 DRUM
	164	SPST2610Z	SCREW,X2 CASS HOUS ASSY
	165	PQ35385-1-1	SHIELD COVER,PRE
	166	SDST2606Z	SCREW,X2 PRE
	167	SDSF4012Z	SCREW,X2 MECH
	168	SDSF3010Z	SCREW,X2 CASS HOUS ASSY
	170	SDSF3010M	SCREW,TERMINAL
	171	SDSF3010Z	SCREW,X2 TERMINAL
	172	PQ43013-3	FOOT,X2
⚠	173	QMP4A10-170	POWER CORD
	174	PQ41556	EARTH PLATE
	176	PUS29724D	CASSETTE HOUSING ASSEMBLY
	176A	PQ46359	CASSETTE SWITCH PIN
⚠	177	PQ46485	SPACER(SAFETY)
	180	PQ21623-1-2	EARTH PLATE(RF)
	181	SDSF3008Z	SCREW,X2 EARTH PLATE
	183	PEME0947-01-01	SPACER,X2 MECH
	WR1	PW30802-1314	WIRE,DISPLAY
	WR2	PW30802-0714	WIRE,SW/JACK
	WR3	PW30803-0414	WIRE,DRUM
	WR4	PW30101-C0HH887	WIRE,A/C HEAD
	WR5	PW30701-30AAYY	WIRE,FE HEAD
	WR6	PW30218-0831613	WIRE,JOG

5.3 MECHANISM ASSEMBLY <M4>



Category	Part number	MARK
Grease	KYODO-SH-P	AA
Oil	COSMO-HV56	BB

NOTE: The section marked in AA and BB indicate lubrication and greasing areas.

MECHANISM ASSEMBLY <M4>

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION
1	PQ46298A-5	TENSION BAND ASSEMBLY
2	SDST2608Z	SCREW
3	PQ35012-1-3	TENSION ARM LEVER
4	PQM30001-385109	TENSION SPRING
5	PQ46302-1-3	ADJUST PIN
6	PQ46303B-7	TENSION ARM ASSEMBLY
7	PQM30017-47	SLIT WASHER
8	PQ46548A	MAIN BRAKE ASSEMBLY (SUPPLY)
9	PQ46306A-3	SUB BRAKE ASSEMBLY (SUPPLY)
10	PQM30001-393	TENSION SPRING
11	PQ46550A	MAIN BRAKE ASSEMBLY (TAKE UP)
12	PQ46309A-4	SUB BRAKE ASSEMBLY (TAKE UP)
13	PQM30001-389102	TENSION SPRING
14	PQ46499A-3	REEL ASSEMBLY (SUPPLY)
15	PQ35014-1-1	SLIT DISK (SUPPLY)
16	PQ35015-1-1	SLIT DISK (TAKE UP)
17	PQM30018-69	SPACER,X2
18	PQM30003-38	BELT(CAPSTAN)
19	PQ46497B-2	PULLEY ASSEMBLY
19A	PQM30002-233	COMPRESION SPRING
19B	PQ46311	SPRING CAP
21	PQ46498A-2	REEL ASSEMBLY (TAKE UP)
22	PQM30018-69	SPACER
23	PQ46312B-8	IDLER ARM ASSEMBLY
24	PQ46316A-1	CLUTCH UNIT (SUPPLY)
25	PQ46323A-1	CLUTCH UNIT (TAKE UP)
26	PQ46325B-8	GUIDE ARM ASSEMBLY
27	PQ46326-2	TORSION SPRING
28	PQ46327A-2	PINCH ROLLER ARM ASSEMBLY
29	PQM30017-24	SLIT WASHER,P LEVER
30	PEHE0182	AUDIO CONTROL HEAD
31	PQ35206-1-3	HEAD BASE
32	PQ43687A	SPECIAL SCREW,X3
33	PQM30002-192	COMPRESSION SPRING,X3
34	SDSP2604Z	SCREW,X2
35	PQ46595A	POLE BASE ASSEMBLY (SUPPLY)
36	PQ46597A	POLE BASE ASSEMBLY (TAKE UP)
37	PQ46332A-3	LOADING ARM ASSEMBLY (SUPPLY)
38	PQ46337A-6	LOADING ARM ASSEMBLY (TAKE UP
39	PQ11657-1-9	GUIDE RAIL
40	SPST2608Z	SCREW,X4
41	SDST2612Z	SCREW
42	PQ21684-1-3	CONTROL CAM
43	PQ35138-1-2	CONTROL BRACKET
45	PQ11658-1-12	CONTROL PLATE
46	PQM30017-8	SLIT WASHER
47	PQ21685-2-9	PINCH PLATE
48	SPST2606Z	SCREW,X2
49	SPSF2608M	SCREW
50	PQ46342B-10	LEVER ASSEMBLY
51	PQM30017-8	SLIT WASHER
52	PQ35083-1-8	REEL BRACKET
53	PQM30017-51	SLIT WASHER,X2
54	Q03093-830	WASHER
55	PQ35026-1-7	IDLER LEVER
56	PQ11659-1-11	SLIDE PLATE
57	PQ46344A-2	CHANGE LEVER ASSEMBLY
58	PQ21686-1-3	TAKE UP LEVER ASSEMBLY
59	PQ46345-1-2	TAKE UP HEAD
60	PQM30001-387106	TENSION SPRING
⚠ 61	PU60628-3-2	LOADING MOTOR
62	SPSP3003Z	SCREW,X2
63	PW30101-80AJ632	WIRE
64	PQM30003-39	BELT
65	PQ46395B	WORM GEAR ASSEMBLY
66	PQ21699	WORM BEARING
67	SPST2606Z	SCREW
⚠ 68	PU61487-2	CAPSTAN MOTOR
69	PQ46347F-15	SUB DECK ASSEMBLY
70	SPSG2608Z	SCREW,X3
71	PQ46356C-3	CAPSTAN BRAKE ASSEMBLY
72	SPST2606Z	SCREW,X2
73	PQM30001-384101	TENSION SPRING,CAPSTAN BRAKE
74	PQ46353A-2	CHANGE ARM ASSEMBLY
75	PQ46354	CHANGE GEAR
76	PQM30001-386	TENSION SPRING
77	PQM30003-40	BELT
78	PQ46355	CASSETTE GEAR
79	PQ35030-1-5	LID GUIDE
80	PQ21689-2	LED PRISM
81	PEHE0237	FULL ERASE HEAD
82	SDST2610Z	SCREW
83	PU61432-1-1	ROTARY ENCODER
86	PQ43546-1-2	MOTOR PULLEY
87	PQ35217-1-2	CONTROL BRACKET 2
92	SDST2608Z	SCREW
93	SDST2608Z	SCREW
99	PQ21680D-18	MAIN DECK ASSEMBLY

5.4 ELECTRICAL PARTS LIST

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION
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MAIN BOARD ASSEMBLY <03>

PW1	PB10993E-01	MAIN BOARD ASSEMBLY,J638E
	PB10993F-01	MAIN BOARD ASSEMBLY,J638EH
IC1	HA118203AF	IC
IC2	MSM7470-71MS-XE	IC
IC101	HA118195NT	IC
IC401	JCP0056	IC
IC402	BA6138	IC
IC501	LA7257	IC
IC701	HD6433929TA37F	QFP IC (MCU)
IC702	24LC08B/P	IC
	or AT24C08-10PC	IC
	or X24C08-10P	IC
IC703	S-80728AN-Z	IC
	or RE5VL28A	IC
IC704	TA7291S	IC
IC705	M50253P	IC
	or BU2090	IC
IC706	M66007P	IC
IC1001	BA15218N	IC
	or M5223L	IC
	or XRA15218N	IC
IC1101	BU2885BS	IC
	or BU2884BS	IC
IC1301	LC74783-9153	IC (OSD)
Q1	2SC4081(QRS)	TRANSISTOR
	or 2SD1819A(QRS)	TRANSISTOR
Q9	DTA144WU	TRANSISTOR
	or UN511E	TRANSISTOR
Q13	DTC144WU	TRANSISTOR
	or UN521E	TRANSISTOR
Q15	2SA1576(QRS)	TRANSISTOR
	or 2SB1218A(QRS)	TRANSISTOR
Q16	DTC144WU	TRANSISTOR
	or UN521E	TRANSISTOR
Q20	DTA144WU	TRANSISTOR
	or UN511E	TRANSISTOR
Q21	2SC4081(QRS)	TRANSISTOR
	or 2SD1819A(QRS)	TRANSISTOR
Q24	DTA144WU	TRANSISTOR
	or UN511E	TRANSISTOR
Q101	2SC4081(QRS)	TRANSISTOR
	or 2SD1819A(QRS)	TRANSISTOR
Q102	DTA144WU	TRANSISTOR
	or UN511E	TRANSISTOR
Q103	DTC144WU	TRANSISTOR
	or UN521E	TRANSISTOR
Q104	2SA1576(QRS)	TRANSISTOR
	or 2SB1218A(QRS)	TRANSISTOR
Q252	2SA1576(QRS)	TRANSISTOR
	or 2SB1218A(QRS)	TRANSISTOR
Q258	2SA1576(QRS)	TRANSISTOR
	or 2SB1218A(QRS)	TRANSISTOR
Q304	DTA114EU	TRANSISTOR
	or UN5111	TRANSISTOR
Q305	2SC4081(QRS)	TRANSISTOR
	or 2SD1819A(QRS)	TRANSISTOR
Q306	2SC4081(QRS)	TRANSISTOR
	or 2SD1819A(QRS)	TRANSISTOR

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION
Q307	2SA1576(QR)	TRANSISTOR
Q308	2SA1576(QR)	TRANSISTOR
Q309	DTA114EU	TRANSISTOR
	or UN5111	TRANSISTOR
Q310	2SC4081(QRS)	TRANSISTOR
	or 2SD1819A(QRS)	TRANSISTOR
Q311	2SC4081(QRS)	TRANSISTOR
	or 2SD1819A(QRS)	TRANSISTOR
Q314	DTA144WU	TRANSISTOR
	or UN511E	TRANSISTOR
Q451	2SA1577(RS)	TRANSISTOR,J638E
Q452	2SA1576(QRS)	TRANSISTOR,J638E
	or 2SB1218A(QRS)	TRANSISTOR,J638E
Q453	DTC144TU	TRANSISTOR,J638E
	or UN5210	TRANSISTOR,J638E
Q454	DTC144TU	TRANSISTOR,J638E
	or UN5210	TRANSISTOR,J638E
Q455	DTC144TU	TRANSISTOR,J638E
	or UN5210	TRANSISTOR,J638E
Q456	DTA144WU	TRANSISTOR,J638E
	or UN511E	TRANSISTOR,J638E
Q457	DTC144WU	TRANSISTOR,J638E
	or UN521E	TRANSISTOR,J638E
Q503	2SC4081(QRS)	TRANSISTOR
	or 2SD1819A(QRS)	TRANSISTOR
Q701	2SC4081(QRS)	TRANSISTOR
	or 2SD1819A(QRS)	TRANSISTOR
Q702	DTC114WU	TRANSISTOR
Q704	PN268VI	PH TRANSISTOR
Q705	PN268VI	PH TRANSISTOR
Q708	DTC114EU	TRANSISTOR
	or UN5211	TRANSISTOR
Q710	2SC4081(QRS)	TRANSISTOR
	or 2SD1819A(QRS)	TRANSISTOR
Q901	2SK2632-CB14	FE TRANSISTOR
Q902	2SC3616(ML)	TRANSISTOR
Q951	2SD1913(RS)	TRANSISTOR
	or 2SD2061(F)	TRANSISTOR
Q952	2SC4081(RS)	TRANSISTOR
Q953	2SC3616(MLK)	TRANSISTOR
Q954	DTA114EU	TRANSISTOR
Q955	2SD2144S(UVW)	TRANSISTOR
Q956	2SB1256	TRANSISTOR
Q957	DTC114TU	TRANSISTOR
Q958	2SC1740S(RS)	TRANSISTOR
	or 2SC3199(GB)-TJK	TRANSISTOR
Q960	2SB1256	TRANSISTOR,J638E
Q1002	2SB810H,J	TRANSISTOR
Q1003	2SC3068	TRANSISTOR
Q1004	2SA1576(RS)	TRANSISTOR
Q1005	2SC4081(RS)	TRANSISTOR
Q1008	2SA1576(RS)	TRANSISTOR
Q1011	2SC4081(RS)	TRANSISTOR
Q1012	2SA1576(RS)	TRANSISTOR,J638E
Q1013	2SA1576(RS)	TRANSISTOR,J638E
Q1014	DTC144WU	TRANSISTOR,J638E
	or UN521E	TRANSISTOR,J638E
Q1015	DTC144WU	TRANSISTOR,J638E
	or UN521E	TRANSISTOR,J638E
Q1101	DTC114EU	TRANSISTOR
	or UN5211	TRANSISTOR

#△ REF No.	PART No.	PART NAME, DESCRIPTION
Q1301	2SC4081(QRS)	TRANSISTOR
	or 2SD1819A(QRS)	TRANSISTOR
Q1302	2SA1576(QRS)	TRANSISTOR
	or 2SB1218A(QRS)	TRANSISTOR
Q1401	2SA1576(QRS)	TRANSISTOR
	or 2SB1218A(QRS)	TRANSISTOR
Q1402	2SA1576(QRS)	TRANSISTOR
	or 2SB1218A(QRS)	TRANSISTOR
Q1951	2SA1576(QRS)	TRANSISTOR
	or 2SB1218A(QRS)	TRANSISTOR
Q1952	2SA1576(QRS)	TRANSISTOR
	or 2SB1218A(QRS)	TRANSISTOR
D5	1SS133	DIODE
	or 1N4148M	DIODE
	or MA165	DIODE
D10	1SS133	DIODE
	or MA165	DIODE
	or 1N4148M	DIODE
D11	1SS133	DIODE
	or 1N4148M	DIODE
	or MA165	DIODE
D254	1SS133	DIODE
	or 1N4148M	DIODE
	or MA165	DIODE
D301	1N4148M	DIODE
	or 1SS133	DIODE
D451	1N4148M	DIODE,J638E
	or 1SS133	DIODE,J638E
D481	1N4148M	DIODE
	or 1SS133	DIODE
D502	1N4148M	DIODE
	or 1SS133	DIODE
D503	1N4148M	DIODE
	or 1SS133	DIODE
D504	1N4148M	DIODE
	or 1SS133	DIODE
D505	1N4148M	DIODE
	or 1SS133	DIODE
D701	RD9.1ES-T1B2	ZENER DIODE
	or MTZJ9.1(B)	ZENER DIODE
D702	11ES2	DIODE
D704	11ES2	DIODE
D705	1N4148M	DIODE
	or 1SS133	DIODE
	or MA165	DIODE
D706	1N4148M	DIODE
	or MA165	DIODE
	or 1SS133	DIODE
D710	SIR-381SB3FM	LE DIODE
	or SIR-381SB3FX1M	LE DIODE
D711	1N4148M	DIODE
	or 1SS133	DIODE
	or MA165	DIODE
D712	1N4148M	DIODE
	or MA165	DIODE
	or 1SS133	DIODE
D713	1N4148M	DIODE
	or 1SS133	DIODE
	or MA165	DIODE
D714	1N4148M	DIODE
	or MA165	DIODE
	or 1SS133	DIODE

#△ REF No.	PART No.	PART NAME, DESCRIPTION
D715	1N4148M	DIODE
	or 1SS133	DIODE
	or MA165	DIODE
D901	S1WB(A)60F4072X	BRIDGE DIODE
	or S1WB(A)60F4062X	BRIDGE DIODE
D908	1SS133	DIODE
	or MA165	DIODE
	or 1N4148M	DIODE
D909	UZ27BSB	ZENER DIODE
	or RD27ES-T1B2	ZENER DIODE
	or MTZJ27(B)	ZENER DIODE
D910	AU01	FR DIODE
	or ERA18-04-T2	FR DIODE
	or 1SR153-400-T2	FR DIODE
	or 10ELS4	FR DIODE
D911	AU01	FR DIODE
	or ERA18-04-T2	FR DIODE
	or 10ELS4	FR DIODE
	or 1SR153-400-T2	FR DIODE
D951	AU01Z	FR DIODE
	or ERA18-02-T2	FR DIODE
	or 10ELS2	FR DIODE
	or 1SR153-200-T2	FR DIODE
D952	FML-12S	FR DIODE
	or FCF06A20	FR DIODE
	or MA644	FR DIODE
	or YG901C2	FR DIODE
D954	FMB-24	BARRIER DIODE
	or F5KQ40B	BARRIER DIODE
	or MA7D49	SB DIODE
	or YG801C04	SB DIODE
D955	RD15ES-T1B1	ZENER DIODE
	or MTZJ15(A)	ZENER DIODE
	or UZ15BSA	ZENER DIODE
D956	RD6.2ES-T1B3	ZENER DIODE
	or UZ6.2BSC	ZENER DIODE
	or MTZJ6.2C	ZENER DIODE
D957	RD10ES-T1B3	ZENER DIODE
	or MTZJ10(C)	ZENER DIODE
	or UZ10BSC	ZENER DIODE
D958	RD30ES-T1B1	ZENER DIODE
	or UZ30BSA	ZENER DIODE
	or MTZJ30(A)	ZENER DIODE
D960	1SS133	DIODE
	or 1N4148M	DIODE
	or MA165	DIODE
D962	RD5.1JSB2	DIODE
	or MA4051N(M)	ZENER DIODE
D963	1SS133	DIODE
	or 1N4148M	DIODE
	or MA165	DIODE
D964	11ES2	DIODE
	or ERA15-02	DIODE
D965	AU01	FR DIODE
	or ERA18-04-T2	FR DIODE
	or 1SR153-400-T2	FR DIODE
	or 10ELS4	FR DIODE
D968	AU01Z	FR DIODE
	or ERA18-02-T2	FR DIODE
	or 1SR153-200-T2	FR DIODE
	or 10ELS2	FR DIODE

#△ REF No.	PART No.	PART NAME, DESCRIPTION	
D969	AU01Z	FR DIODE	
	or ERA18-02-T2	FR DIODE	
	or 1SR153-200-T2	FR DIODE	
	or 10ELS2	FR DIODE	
D1001	MTZ10D	ZENER DIODE	
D1002	MTZJ33(C)	ZENER DIODE	
	or UZ33BSC	DIODE	
D1004	1SS133	DIODE	
	or 1N4148M	DIODE	
	or MA165	DIODE	
D1005	1SS133	DIODE	
	or MA165	DIODE	
	or 1N4148M	DIODE	
R1	QRSA08J-332YN	RESISTOR	3.3kΩ,1/10W
R2	QRSA08J-681YN	RESISTOR	680Ω,1/10W
R3	QRSA08J-222YN	RESISTOR	2.2kΩ,1/10W
R4	QRSA08J-182YN	RESISTOR	1.8kΩ,1/10W
R5	QRSA08J-821YN	RESISTOR	820Ω,1/10W
R6	QRSA08J-821YN	RESISTOR	820Ω,1/10W
R7	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
R8	QRSA08J-222YN	RESISTOR	2.2kΩ,1/10W
R9	QRSA08J-273YN	RESISTOR	27kΩ,1/10W
R10	QRSA08J-122YN	RESISTOR	1.2kΩ,1/10W
R11	QRSA08J-392YN	RESISTOR	3.9kΩ,1/10W
R12	QRSA08J-682YN	RESISTOR	6.8kΩ,1/10W
R13	QRSA08J-152YN	RESISTOR	1.5kΩ,1/10W
R14	QRSA08J-682YN	RESISTOR	6.8kΩ,1/10W
R15	QRSA08J-392YN	RESISTOR	3.9kΩ,1/10W
R16	QRSA08J-222YN	RESISTOR	2.2kΩ,1/10W
R17	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R31	QRSA08J-561YN	RESISTOR	560Ω,1/10W
R34	QRSA08J-561YN	RESISTOR	560Ω,1/10W
R35	QRSA08J-153YN	RESISTOR	15kΩ,1/10W
R36	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R40	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
R43	QRD161J-225	RESISTOR	2.2MΩ,1/6W
R45	QRSA08J-395YN	RESISTOR	3.9MΩ,1/10W
R46	QRSA08J-822YN	RESISTOR	8.2kΩ,1/10W
R47	QRSA08J-681YN	RESISTOR	680Ω,1/10W
R49	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
R50	QRSA08J-152YN	RESISTOR	1.5kΩ,1/10W
R51	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
R52	QRSA08J-152YN	RESISTOR	1.5kΩ,1/10W
R53	QRD161J-273	RESISTOR	27kΩ,1/6W
R57	QRSA08J-222YN	RESISTOR	2.2kΩ,1/10W
R58	QRSA08J-183YN	RESISTOR	18kΩ,1/10W
R59	QRSA08J-153YN	RESISTOR	15kΩ,1/10W
R61	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
R62	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
R63	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
R64	QRSA08J-272YN	RESISTOR	2.7kΩ,1/10W
R65	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
R66	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
R67	QRSA08J-332YN	RESISTOR	3.3kΩ,1/10W
R68	QRSA08J-562YN	RESISTOR	5.6kΩ,1/10W
R101	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R102	QRSA08J-332YN	RESISTOR	3.3kΩ,1/10W
R103	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R104	NRVA62D-152N	RESISTOR	1.5kΩ,1/16W
R105	QRSA08J-471YN	RESISTOR	470Ω,1/10W
R106	QRSA08J-471YN	RESISTOR	470Ω,1/10W
R107	QRSA08J-182YN	RESISTOR	1.8kΩ,1/10W

#△ REF No.	PART No.	PART NAME, DESCRIPTION	
R109	QRSA08J-152YN	RESISTOR	1.5kΩ,1/10W
R110	QRSA08J-821YN	RESISTOR	820Ω,1/10W
R111	QRSA08J-393YN	RESISTOR	39kΩ,1/10W
R272	QRSA08J-152YN	RESISTOR	1.5kΩ,1/10W
R280	QRSA08J-561YN	RESISTOR	560Ω,1/10W
R281	QRSA08J-132YN	RESISTOR	1.3kΩ,1/10W
R284	QRSA08J-122YN	RESISTOR	1.2kΩ,1/10W
R301	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R302	QRSA08J-271YN	RESISTOR	270Ω,1/10W
R303	QRSA08J-101YN	RESISTOR	100Ω,1/10W
R307	QRSA08J-682YN	RESISTOR	6.8kΩ,1/10W
R308	QRSA08J-224YN	RESISTOR	220kΩ,1/10W
R309	QRSA08J-121YN	RESISTOR	120Ω,1/10W
R310	QRSA08J-223YN	RESISTOR	22kΩ,1/10W
R312	QRSA08J-681YN	RESISTOR	680Ω,1/10W
R313	QRSA08J-101YN	RESISTOR	100Ω,1/10W
R314	QRSA08J-223YN	RESISTOR	22kΩ,1/10W
R316	QRSA08J-153YN	RESISTOR	15kΩ,1/10W
R317	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
R318	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
R319	QRSA08J-473YN	RESISTOR	47kΩ,1/10W
R320	QRSA08J-183YN	RESISTOR	18kΩ,1/10W
R321	QRSA08J-473YN	RESISTOR	47kΩ,1/10W
R322	QRSA08J-183YN	RESISTOR	18kΩ,1/10W
R323	QRSA08J-101YN	RESISTOR	100Ω,1/10W
R324	QRSA08J-153YN	RESISTOR	15kΩ,1/10W
R325	QRSA08J-3R3YN	RESISTOR	3.3Ω,1/10W
R326	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
R327	QRSA08J-223YN	RESISTOR	22kΩ,1/10W
R329	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
R330	QRSA08J-151YN	RESISTOR	150Ω,1/10W
R331	QRSA08J-3R3YN	RESISTOR	3.3Ω,1/10W
R332	QRSA08J-273YN	RESISTOR	27kΩ,1/10W
R339	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
R340	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R341	QRSA08J-103YN	RESISTOR,J638EH	10kΩ,1/10W
	QRSA08J-123YN	RESISTOR,J638E	12kΩ,1/10W
R342	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R344	QRSA08J-224YN	RESISTOR	220kΩ,1/10W
R401	QRSA08J-393YN	RESISTOR	39kΩ,1/10W
R402	QRSA08J-393YN	RESISTOR	39kΩ,1/10W
R403	QRSA08J-393YN	RESISTOR	39kΩ,1/10W
R404	QRSA08J-183YN	RESISTOR	18kΩ,1/10W
R405	QRSA08J-183YN	RESISTOR	18kΩ,1/10W
R406	QRSA08J-183YN	RESISTOR	18kΩ,1/10W
R407	QRSA08J-511YN	RESISTOR	510Ω,1/10W
R408	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
R409	QRSA08J-123YN	RESISTOR	12kΩ,1/10W
R410	QRSA08J-392YN	RESISTOR	3.9kΩ,1/10W
R411	NRVA62B-153N	RESISTOR	15kΩ,1/16W
R412	QRSA08J-682YN	RESISTOR	6.8kΩ,1/10W
R413	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R414	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R415	QRSA08J-473YN	RESISTOR	47kΩ,1/10W
R416	QRSA08J-274YN	RESISTOR	270kΩ,1/10W
R417	QRSA08J-222YN	RESISTOR	2.2kΩ,1/10W
R418	NRVA62B-113N	RESISTOR	11kΩ,1/16W
R419	QRSA08J-392YN	RESISTOR	3.9kΩ,1/10W
R420	QRSA08J-123YN	RESISTOR	12kΩ,1/10W
R421	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
R422	QRSA08J-511YN	RESISTOR	510Ω,1/10W
R423	QRSA08J-183YN	RESISTOR	18kΩ,1/10W

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
R424	QRSA08J-183YN	RESISTOR	18kΩ,1/10W
R425	QRSA08J-183YN	RESISTOR	18kΩ,1/10W
R426	QRSA08J-393YN	RESISTOR	39kΩ,1/10W
R427	QRSA08J-393YN	RESISTOR	39kΩ,1/10W
R428	QRSA08J-393YN	RESISTOR	39kΩ,1/10W
R429	QRSA08J-183YN	RESISTOR,J638E	18kΩ,1/10W
R430	QRSA08J-222YN	RESISTOR,J638EH	2.2kΩ,1/10W
	QRSA08J-393YN	RESISTOR,J638E	39kΩ,1/10W
R432	QRSA08J-222YN	RESISTOR,J638EH	2.2kΩ,1/10W
	QRSA08J-393YN	RESISTOR,J638E	39kΩ,1/10W
R433	QRSA08J-183YN	RESISTOR,J638E	18kΩ,1/10W
R434	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R435	QRSA08J-183YN	RESISTOR	18kΩ,1/10W
R436	QRSA08J-183YN	RESISTOR	18kΩ,1/10W
R437	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R438	QRSA08J-221YN	RESISTOR	220Ω,1/10W
R440	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R441	QRSA08J-104YN	RESISTOR,J638E	100kΩ,1/10W
R451	QRSA08J-473YN	RESISTOR,J638E	47kΩ,1/10W
R452	QRSA08J-102YN	RESISTOR,J638E	1kΩ,1/10W
R453	QRSA08J-473YN	RESISTOR,J638E	47kΩ,1/10W
R454	QRSA08J-103YN	RESISTOR,J638E	10kΩ,1/10W
R455	QRSA08J-221YN	RESISTOR,J638E	220Ω,1/10W
R456	QRSA08J-221YN	RESISTOR	220Ω,1/10W
R481	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
R482	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R501	QRSA08J-271YN	RESISTOR	270Ω,1/10W
R502	QRSA08J-182YN	RESISTOR	1.8kΩ,1/10W
R503	QRSA08J-223YN	RESISTOR	22kΩ,1/10W
R506	QRSA08J-122YN	RESISTOR	1.2kΩ,1/10W
R507	QRSA08J-681YN	RESISTOR	680Ω,1/10W
R516	QRSA08J-563YN	RESISTOR	56kΩ,1/10W
R517	QRSA08J-562YN	RESISTOR	5.6kΩ,1/10W
R518	QRSA08J-392YN	RESISTOR	3.9kΩ,1/10W
R519	QRSA08J-271YN	RESISTOR	270Ω,1/10W
R520	QRSA08J-473YN	RESISTOR	47kΩ,1/10W
R521	QRSA08J-562YN	RESISTOR	5.6kΩ,1/10W
R522	QRSA08J-152YN	RESISTOR	1.5kΩ,1/10W
R523	QRSA08J-104YN	RESISTOR	100kΩ,1/10W
R524	QRSA08J-104YN	RESISTOR	100kΩ,1/10W
R525	QRSA08J-222YN	RESISTOR	2.2kΩ,1/10W
R701	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
R702	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R703	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
R704	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
R705	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
R706	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
R707	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
R708	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
R709	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
R710	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
R712	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
R713	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
R714	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
R715	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
R716	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
R717	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
R718	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
R719	QRSA08J-152YN	RESISTOR	1.5kΩ,1/10W
R720	QRSA08J-152YN	RESISTOR	1.5kΩ,1/10W
R721	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
R722	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
R723	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R724	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R725	QRSA08J-271YN	RESISTOR	270Ω,1/10W
R726	QRSA08J-271YN	RESISTOR	270Ω,1/10W
R727	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
R728	QRSA08J-271YN	RESISTOR	270Ω,1/10W
R729	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
R730	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
R731	QRSA08J-221YN	RESISTOR,J638EH	220Ω,1/10W
	QRSA08J-222YN	RESISTOR,J638E	2.2kΩ,1/10W
R732	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R733	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
R734	QRSA08J-562YN	RESISTOR	5.6kΩ,1/10W
R735	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R736	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
R738	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R739	QRSA08J-101YN	RESISTOR	100Ω,1/10W
R740	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R741	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R742	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R743	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R744	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R745	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
R746	QRSA08J-332YN	RESISTOR	3.3kΩ,1/10W
R747	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
R748	QRSA08J-332YN	RESISTOR	3.3kΩ,1/10W
R749	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
R750	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R751	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
R752	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R753	QRSA08J-392YN	RESISTOR	3.9kΩ,1/10W
R754	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
R755	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
R756	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
R757	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
R758	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R759	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R761	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R762	QRSA08J-221YN	RESISTOR	220Ω,1/10W
R763	QRSA08J-221YN	RESISTOR	220Ω,1/10W
R765	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R766	QRD161J-474	RESISTOR	470kΩ,1/6W
R767	QRSA08J-334YN	RESISTOR	330kΩ,1/10W
R769	QRD161J-103	RESISTOR	10kΩ,1/6W
R770	QRSA08J-682YN	RESISTOR	6.8kΩ,1/10W
R771	QRSA08J-104YN	RESISTOR	100kΩ,1/10W
R772	QRSA08J-152YN	RESISTOR	1.5kΩ,1/10W
R773	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
R774	QRSA08J-105YN	RESISTOR	1MΩ,1/10W
R775	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
R776	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
R777	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R778	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R779	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R780	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R781	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R782	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R785	QRSA08J-221YN	RESISTOR	220Ω,1/10W
R786	QRD161J-750	RESISTOR	75Ω,1/6W
R787	QRSA08J-221YN	RESISTOR	220Ω,1/10W
R788	QRSA08J-223YN	RESISTOR	22kΩ,1/10W
R789	QRSA08J-223YN	RESISTOR	22kΩ,1/10W

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
R790	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R791	QRSA08J-104YN	RESISTOR	100kΩ,1/10W
R792	QRSA08J-271YN	RESISTOR	270Ω,1/10W
R793	QRSA08J-681YN	RESISTOR	680Ω,1/10W
R794	QRSA08J-104YN	RESISTOR	100kΩ,1/10W
R800	QRSA08J-471YN	RESISTOR	470Ω,1/10W
R801	QRSA08J-101YN	RESISTOR	100Ω,1/10W
R802	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R803	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R804	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R805	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R806	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R807	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
R808	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
R809	QRSA08J-222YN	RESISTOR	2.2kΩ,1/10W
R810	QRSA08J-471YN	RESISTOR	470Ω,1/10W
R811	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
R812	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
R814	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R815	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R816	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R817	QRSA08J-104YN	RESISTOR	100kΩ,1/10W
R819	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R820	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
R821	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
R827	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R828	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
R829	QRSA08J-104YN	RESISTOR	100kΩ,1/10W
R830	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R901	QRD161J-224	RESISTOR	220kΩ,1/6W
R902	QRD161J-224	RESISTOR	220kΩ,1/6W
R903	QRD161J-683	RESISTOR	68kΩ,1/6W
R904	QRD121J-331S	RESISTOR	330Ω,1/2W
R905	QRX014J-R39Z	MF RESISTOR	0.39Ω,1W
R906	QRSA08J-681YN	RESISTOR	680Ω,1/10W
R907	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
R908	QRG02DJ-393X	OMF RESISTOR	39kΩ,2W
R909	QRSA08J-152YN	RESISTOR	1.5kΩ,1/10W
R910	QRSA08J-222YN	RESISTOR	2.2kΩ,1/10W
R911	QRSA08J-224YN	RESISTOR	220kΩ,1/10W
R912	QRG02DJ-393X	OMF RESISTOR	39kΩ,2W
R951	QRSA08J-471YN	RESISTOR	470Ω,1/10W
R952	QRV144F-2211AY	CMF RESISTOR	2.21kΩ,1/4W
R953	QRV144F-3481AY	CMF RESISTOR	3.48kΩ,1/4W
R954	QRSA08J-122YN	RESISTOR	1.2kΩ,1/10W
R955	QRG02DJ-222X	OMF RESISTOR	2.2kΩ,2W
⚠ R957	QRZ0077-470X	FUSIBLE RESISTOR	47Ω,1/4W
R958	QRSA08J-471YN	RESISTOR	470Ω,1/10W
R959	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R960	QRSA08J-471YN	RESISTOR	470Ω,1/10W
R961	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R962	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
R963	QRD161J-511	RESISTOR	510Ω,1/6W
R964	QRSA08J-471YN	RESISTOR	470Ω,1/10W
R965	QRSA08J-471YN	RESISTOR	470Ω,1/10W
R966	QRSA08J-473YN	RESISTOR	47kΩ,1/10W
R967	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
R968	QRSA08J-222YN	RESISTOR	2.2kΩ,1/10W
R970	QRX014J-8R2Z	MF RESISTOR	8.2Ω,1W
R977	QRG02DJ-182X	OMF RESISTOR	1.8kΩ,2W
R978	QRSA08J-472YN	RESISTOR,J638E	4.7kΩ,1/10W
R979	QRSA08J-222YN	RESISTOR,J638E	2.2kΩ,1/10W

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
R1001	QRSA08J-152YN	RESISTOR	1.5kΩ,1/10W
R1002	QRSA08J-153YN	RESISTOR	15kΩ,1/10W
R1003	QRSA08J-331YN	RESISTOR	330Ω,1/10W
R1004	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
R1005	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R1006	QRSA08J-561YN	RESISTOR	560Ω,1/10W
R1007	QRSA08J-223YN	RESISTOR	22kΩ,1/10W
R1008	QRSA08J-153YN	RESISTOR	15kΩ,1/10W
R1009	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R1010	QRSA08J-123YN	RESISTOR	12kΩ,1/10W
R1011	QRD161J-562	RESISTOR,J638EH	5.6kΩ,1/6W
R1012	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
R1016	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R1021	QRSA08J-471YN	RESISTOR	470Ω,1/10W
R1022	QRSA08J-104YN	RESISTOR	100kΩ,1/10W
R1023	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R1024	QRSA08J-332YN	RESISTOR	3.3kΩ,1/10W
R1026	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
R1030	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R1036	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R1038	QRSA08J-152YN	RESISTOR,J638EH	1.5kΩ,1/10W
R1041	QRSA08J-103YN	RESISTOR,J638E	10kΩ,1/10W
R1042	QRSA08J-103YN	RESISTOR,J638E	10kΩ,1/10W
R1043	QRSA08J-273YN	RESISTOR,J638E	27kΩ,1/10W
R1044	QRSA08J-273YN	RESISTOR,J638E	27kΩ,1/10W
R1045	QRSA08J-472YN	RESISTOR,J638E	4.7kΩ,1/10W
R1046	QRSA08J-472YN	RESISTOR,J638E	4.7kΩ,1/10W
R1101	QRSA08J-561YN	RESISTOR	560Ω,1/10W
R1102	QRSA08J-561YN	RESISTOR	560Ω,1/10W
R1103	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R1104	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R1105	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R1106	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R1107	QRSA08J-562YN	RESISTOR	5.6kΩ,1/10W
R1108	QRSA08J-222YN	RESISTOR	2.2kΩ,1/10W
R1109	QRSA08J-562YN	RESISTOR	5.6kΩ,1/10W
R1110	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R1111	QRSA08J-821YN	RESISTOR	820Ω,1/10W
R1112	QRSA08J-222YN	RESISTOR	2.2kΩ,1/10W
R1113	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R1114	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R1301	QRSA08J-392YN	RESISTOR	3.9kΩ,1/10W
R1302	QRSA08J-331YN	RESISTOR	330Ω,1/10W
R1303	QRSA08J-151YN	RESISTOR	150Ω,1/10W
R1304	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
R1306	QRSA08J-152YN	RESISTOR	1.5kΩ,1/10W
R1307	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R1308	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R1309	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R1401	QRSA08J-682YN	RESISTOR	6.8kΩ,1/10W
R1402	QRSA08J-562YN	RESISTOR	5.6kΩ,1/10W
R1403	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R1404	QRSA08J-223YN	RESISTOR	22kΩ,1/10W
R1405	QRSA08J-392YN	RESISTOR	3.9kΩ,1/10W
R1406	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R1407	QRSA08J-122YN	RESISTOR	1.2kΩ,1/10W
R1408	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
R1409	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R1951	QRSA08J-333YN	RESISTOR	33kΩ,1/10W
R1952	QRSA08J-223YN	RESISTOR	22kΩ,1/10W
R1953	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R1954	QRSA08J-683YN	RESISTOR	68kΩ,1/10W

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
R1955	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
C3	QCYA1EK-104	CAPACITOR	0.1μF,25V
C5	QCFA1HZ-103	CAPACITOR	0.01μF,50V
C6	QEKJ1CM-106	E CAPACITOR	10μF,16V
C7	QCYA1HK-103	CAPACITOR	0.01μF,50V
C9	QEKJ0JM-476	E CAPACITOR	47μF,6.3V
C10	QCYA1EK-104	CAPACITOR	0.1μF,25V
C11	QEKJ1HM-335	E CAPACITOR	3.3μF,50V
C12	QEKJ1HM-225	E CAPACITOR	2.2μF,50V
C13	QCYA1EK-104	CAPACITOR	0.1μF,25V
C14	QCTA1CH-221	CAPACITOR	220pF,16V
C15	QCTA1CH-680	CAPACITOR	68pF,16V
C16	QEKJ1HM-225	E CAPACITOR	2.2μF,50V
C17	QEKJ1HM-474	E CAPACITOR	0.47μF,50V
C18	QCYA1EK-223	CAPACITOR	0.022μF,25V
C19	QCYA1EK-104	CAPACITOR	0.1μF,25V
C20	QCYA1EK-333	CAPACITOR	0.033μF,25V
C21	QCFA1HZ-103	CAPACITOR	0.01μF,50V
C22	QCYA1EK-683	CAPACITOR	0.068μF,25V
C23	QEKJ1CM-107	E CAPACITOR	100μF,16V
C24	QCYA1EK-104	CAPACITOR	0.1μF,25V
C25	QEKJ1HM-335	E CAPACITOR	3.3μF,50V
C27	QEKJ1CM-106	E CAPACITOR	10μF,16V
C28	QCYA1HK-103	CAPACITOR	0.01μF,50V
C29	QEKJ1CM-106	E CAPACITOR	10μF,16V
C30	QEKJ1HM-224	E CAPACITOR	0.22μF,50V
C31	QCYA1EK-104	CAPACITOR	0.1μF,25V
C32	QEKJ1HM-335	E CAPACITOR	3.3μF,50V
C34	QCYA1EK-473	CAPACITOR	0.047μF,25V
C35	QCYA1CK-224	CAPACITOR	0.22μF,16V
C36	QCTA1CH-390	CAPACITOR	39pF,16V
C37	QCYA1EK-104	CAPACITOR	0.1μF,25V
C38	QCTA1CH-151	CAPACITOR	150pF,16V
C39	QCYA1EK-104	CAPACITOR	0.1μF,25V
C41	QCYA1HK-103	CAPACITOR	0.01μF,50V
C42	QCFA1HZ-103	CAPACITOR	0.01μF,50V
C43	QCYA1EK-104	CAPACITOR	0.1μF,25V
C44	QEKJ1CM-476	E CAPACITOR	47μF,16V
C45	QCYA1EK-104	CAPACITOR	0.1μF,25V
C47	QCTA1CH-100	CAPACITOR	10pF,16V
C48	QCYA1HK-183	CAPACITOR	0.018μF,50V
C49	QCTA1CH-270	CAPACITOR	27pF,16V
C50	QCTA1CH-8R0	CAPACITOR	8pF,16V
C53	QCTA1CH-181	CAPACITOR	180pF,16V
C54	QEKJ1HM-105	E CAPACITOR	1μF,50V
C56	QCTA1CH-6R0	CAPACITOR	6pF,16V
C60	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
C61	QCTA1CH-4R0	CAPACITOR	4pF,16V
C63	QCYA1HK-221	CAPACITOR	220pF,50V
C64	QCTA1CH-101	CAPACITOR	100pF,16V
C69	QCVB1CM-103	CAPACITOR	0.01μF,16V
C101	QCFA1HZ-103	CAPACITOR	0.01μF,50V
C102	QCFA1HZ-103	CAPACITOR	0.01μF,50V
C103	QCYA1EK-104	CAPACITOR	0.1μF,25V
C104	QEKJ0JM-476	E CAPACITOR	47μF,6.3V
C105	QCYA1EK-473	CAPACITOR	0.047μF,25V
C106	QCYA1HK-272	CAPACITOR	0.0027μF,50V
C107	QCYA1HK-103	CAPACITOR	0.01μF,50V
C108	QCYA1EK-104	CAPACITOR	0.1μF,25V
C110	QCYA1EK-223	CAPACITOR	0.022μF,25V
C111	QCYA1EK-223	CAPACITOR	0.022μF,25V
C112	QCYA1EK-223	CAPACITOR	0.022μF,25V

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
C113	QCYA1EK-223	CAPACITOR	0.022μF,25V
C114	QCYA1EK-223	CAPACITOR	0.022μF,25V
C115	QCYA1EK-223	CAPACITOR	0.022μF,25V
C116	QCYA1EK-223	CAPACITOR	0.022μF,25V
C117	QCYA1EK-223	CAPACITOR	0.022μF,25V
C118	QCYA1EK-223	CAPACITOR	0.022μF,25V
C119	QCYA1EK-223	CAPACITOR	0.022μF,25V
C120	QCTA1CH-331	CAPACITOR	330pF,16V
C121	QCYA1EK-104	CAPACITOR	0.1μF,25V
C123	QCTA1CH-560	CAPACITOR	56pF,16V
C124	QCTA1CH-560	CAPACITOR	56pF,16V
C125	QCTA1CH-150	CAPACITOR	15pF,16V
C126	QCTA1CH-150	CAPACITOR	15pF,16V
C127	QCFA1HZ-103	CAPACITOR	0.01μF,50V
C130	QCTA1CH-470	CAPACITOR	47pF,16V
C270	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
C271	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
C301	QEKJ1CM-106	E CAPACITOR	10μF,16V
C302	QCYA1HK-182	CAPACITOR	0.0018μF,50V
C303	QEKJ1HM-105	E CAPACITOR	1μF,50V
C304	QCYA1EK-333	CAPACITOR	0.033μF,25V
C305	QCYA1EK-333	CAPACITOR,J638EH	0.033μF,25V
C306	QEKJ1EM-475	E CAPACITOR	4.7μF,25V
C307	QCYA1HK-153	CAPACITOR	0.015μF,50V
C308	QEKJ0JM-226	E CAPACITOR	22μF,6.3V
C309	QCYA1HK-222	CAPACITOR	0.0022μF,50V
C310	QEKJ1EM-475	E CAPACITOR	4.7μF,25V
C313	QFLC1HJ-183Z	F CAPACITOR	0.018μF,50V
C314	QFLC1HJ-153Z	F CAPACITOR	0.015μF,50V
C315	QEKJ1HM-105	E CAPACITOR	1μF,50V
C317	QEKJ1CM-106	E CAPACITOR	10μF,16V
C318	QCYA1HK-332	CAPACITOR	0.0033μF,50V
C319	QCYA1HK-103	CAPACITOR	0.01μF,50V
C320	QFLC1HJ-333Z	F CAPACITOR	0.033μF,50V
C321	QCYA1HK-331	CAPACITOR	330pF,50V
C322	QEKJ1CM-106	E CAPACITOR	10μF,16V
C323	QCYA1HK-103	CAPACITOR	0.01μF,50V
C324	QCYA1HK-332	CAPACITOR	0.0033μF,50V
C325	QFLC1HJ-333Z	F CAPACITOR	0.033μF,50V
C327	QETC1CM-107	E CAPACITOR	100μF,16V
C328	QCYA1HK-221	CAPACITOR	220pF,50V
C401	QEKJ1CM-106	E CAPACITOR	10μF,16V
C402	QEKJ1CM-106	E CAPACITOR	10μF,16V
C403	QEKJ1CM-106	E CAPACITOR	10μF,16V
C404	QEKJ1CM-336	E CAPACITOR	33μF,16V
C405	QCYA1EK-473	CAPACITOR	0.047μF,25V
C406	QEKJ1CM-106	E CAPACITOR	10μF,16V
C407	QEKJ0JM-476	E CAPACITOR	47μF,6.3V
C408	QCYA1HK-153	CAPACITOR	0.015μF,50V
C409	QCYA1HK-103	CAPACITOR	0.01μF,50V
C410	QCFA1EZ-104	CAPACITOR	0.1μF,25V
C415	QCYA1HK-103	CAPACITOR	0.01μF,50V
C416	QCYA1EK-473	CAPACITOR	0.047μF,25V
C417	QETC1HM-224	E CAPACITOR	0.22μF,50V
C418	QCFA1EZ-104	CAPACITOR	0.1μF,25V
C419	QCYA1HK-103	CAPACITOR	0.01μF,50V
C420	QEKJ0JM-476	E CAPACITOR	47μF,6.3V
C421	QCYA1HK-153	CAPACITOR	0.015μF,50V
C422	QEKJ0JM-476	E CAPACITOR	47μF,6.3V
C423	QEKJ1CM-106	E CAPACITOR	10μF,16V
C424	QCYA1EK-473	CAPACITOR	0.047μF,25V
C425	QEKJ1CM-336	E CAPACITOR	33μF,16V

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
C426	QEKJ1CM-106	E CAPACITOR	10μF,16V
C427	QEKJ1CM-106	E CAPACITOR	10μF,16V
C428	QEKJ1CM-106	E CAPACITOR	10μF,16V
C429	QEKJ1CM-106	E CAPACITOR	10μF,16V
C431	QEKJ1CM-476	E CAPACITOR	47μF,16V
C432	QEKJ1HM-105	E CAPACITOR	1μF,50V
C433	QEKJ1CM-106	E CAPACITOR	10μF,16V
C434	QEKJ1CM-226	E CAPACITOR	22μF,16V
C435	QEKJ1CM-226	E CAPACITOR	22μF,16V
C436	QEKJ0JM-476	E CAPACITOR	47μF,6.3V
C437	QEKJ1CM-106	E CAPACITOR	10μF,16V
C438	QEKJ1HM-105	E CAPACITOR	1μF,50V
C439	QEKJ1HM-105	E CAPACITOR	1μF,50V
C440	QEKJ1CM-336	E CAPACITOR	33μF,16V
C441	QEKJ1CM-336	E CAPACITOR	33μF,16V
C443	QEKJ1HM-105	E CAPACITOR	1μF,50V
C447	QCBB1HK-102	CAPACITOR	0.001μF,50V
C448	QCTA1CH-101	CAPACITOR	100pF,16V
C449	QCTA1CH-101	CAPACITOR	100pF,16V
C450	QCTA1CH-101	CAPACITOR	100pF,16V
C451	QCTA1CH-101	CAPACITOR	100pF,16V
C481	QEKJ1EM-475	E CAPACITOR	4.7μF,25V
C501	QCYA1HK-103	CAPACITOR	0.01μF,50V
C502	QCFA1EZ-104	CAPACITOR	0.1μF,25V
C503	QCYA1HK-103	CAPACITOR	0.01μF,50V
C504	QCFA1EZ-104	CAPACITOR	0.1μF,25V
C505	QEKJ0JM-476	E CAPACITOR	47μF,6.3V
C506	QCYA1EK-104	CAPACITOR	0.1μF,25V
C507	QCYA1EK-563	CAPACITOR	0.056μF,25V
C508	QCYA1HK-221	CAPACITOR	220pF,50V
C509	QCYA1HK-102	CAPACITOR	0.001μF,50V
C510	QCYA1HK-103	CAPACITOR	0.01μF,50V
C511	QCYA1HK-102	CAPACITOR	0.001μF,50V
C512	QCYA1HK-103	CAPACITOR	0.01μF,50V
C513	QCYA1HK-271	CAPACITOR	270pF,50V
C517	QCYA1HK-102	CAPACITOR	0.001μF,50V
C518	QCYA1HK-103	CAPACITOR	0.01μF,50V
C519	QCYA1EK-223	CAPACITOR	0.022μF,25V
C521	QCYA1HK-561	CAPACITOR	560pF,50V
C701	QAT3120-450Z	TRIM CAPACITOR,TIMER CLOCK	
C702	QCTA1CH-180	CAPACITOR	18pF,16V
C703	QCYA1HK-103	CAPACITOR	0.01μF,50V
C704	QEKJ1CM-106	E CAPACITOR	10μF,16V
C709	QCYA1EK-104	CAPACITOR	0.1μF,25V
C712	QCYA1HK-102	CAPACITOR	0.001μF,50V
C715	QCYA1HK-103	CAPACITOR	0.01μF,50V
C717	QEKJ1CM-336	E CAPACITOR	33μF,16V
C719	PU60676-223	E CAPACITOR	0.022μF,5.5V
C730	QEKJ1CM-106	E CAPACITOR	10μF,16V
C731	QCYA1HK-103	CAPACITOR	0.01μF,50V
C736	QCFA1EZ-104	CAPACITOR	0.1μF,25V
C740	QCVB1CM-103	CAPACITOR	0.01μF,16V
C751	QCFA1EZ-104	CAPACITOR	0.1μF,25V
⚠ C901	QFZ9022-683	F CAPACITOR	0.068μF
⚠ C903	QFZ9022-333	F CAPACITOR	0.033μF
C906	QETC1HM-225	E CAPACITOR	2.2μF,50V
C907	QCZ0302-330Z	CAPACITOR	33pF
C908	QFV21HJ-104AZ	F CAPACITOR	0.1μF,50V
C910	PECA0738-686	E CAPACITOR	
⚠ C911	QCZ9026-222	CAPACITOR	0.0022μF
C915	QFLC1HJ-183Z	F CAPACITOR	0.018μF,50V
C916	QCBB1HJ-271	CAPACITOR	270pF,50V

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
C917	QCZ0212-472	CAPACITOR	0.0047μF,1kV
C951	QEMR1AM-107	E CAPACITOR	100μF,10V
C953	QEM91AM-687	E CAPACITOR	680μF,10V
C954	QEM91CM-827	E CAPACITOR	820μF,16V
C955	QEMR1EM-187	E CAPACITOR	180μF,25V
C959	QETC1JM-226	E CAPACITOR	22μF,63V
C960	QETC1HM-226	E CAPACITOR	22μF,50V
C961	QFLC1HJ-103Z	F CAPACITOR	0.01μF,50V
C962	QCYA1HK-102	CAPACITOR	0.001μF,50V
C963	QETC1AM-107	E CAPACITOR	100μF,10V
C964	QEKJ1CM-226	E CAPACITOR	22μF,16V
C965	QETC1AM-107	E CAPACITOR	100μF,10V
C966	QETC1HM-106	E CAPACITOR	10μF,50V
C969	QEKJ1HM-474	E CAPACITOR	0.47μF,50V
C971	QETC1AM-227	E CAPACITOR	220μF,10V
C972	QETC1CM-337	E CAPACITOR	330μF,16V
C1002	QCYA1HK-102	CAPACITOR	0.001μF,50V
C1004	QCYA1HK-102	CAPACITOR	0.001μF,50V
C1005	QCYA1EK-223	CAPACITOR	0.022μF,25V
C1006	QETC1HM-225	E CAPACITOR	2.2μF,50V
C1007	QCYA1EK-473	CAPACITOR,J638EH	0.047μF,25V
C1010	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
C1011	QCYA1EK-104	CAPACITOR	0.1μF,25V
C1059	QETC1CM-476	E CAPACITOR	47μF,16V
C1101	QCYA1HK-102	CAPACITOR	0.001μF,50V
C1102	QCYA1HK-102	CAPACITOR	0.001μF,50V
C1103	QCYA1EK-563	CAPACITOR	0.056μF,25V
C1104	QCTA1CH-101	CAPACITOR	100pF,16V
C1105	QCYA1EK-223	CAPACITOR	0.022μF,25V
C1106	QCYA1HK-103	CAPACITOR	0.01μF,50V
C1107	QCYA1HK-102	CAPACITOR	0.001μF,50V
C1108	QCTA1CH-470	CAPACITOR	47pF,16V
C1109	QCYA1HK-102	CAPACITOR	0.001μF,50V
C1110	QCYA1HK-222	CAPACITOR	0.0022μF,50V
C1111	QCYA1EK-104	CAPACITOR	0.1μF,25V
C1112	QEKJ1CM-106	E CAPACITOR	10μF,16V
C1113	QEKJ1CM-106	E CAPACITOR	10μF,16V
C1114	QEKJ1CM-106	E CAPACITOR	10μF,16V
C1115	QEKJ0JM-107	E CAPACITOR	100μF,6.3V
C1116	QEKJ1HM-105	E CAPACITOR	1μF,50V
C1301	QEKJ1HM-105	E CAPACITOR	1μF,50V
C1302	QCTA1CH-820	CAPACITOR	82pF,16V
C1303	QEKJ1HM-105	E CAPACITOR	1μF,50V
C1304	QCTA1CH-560	CAPACITOR	56pF,16V
C1305	QEKJ0JM-476	E CAPACITOR	47μF,6.3V
C1306	QCYA1HK-103	CAPACITOR	0.01μF,50V
C1307	QCTA1CH-150	CAPACITOR	15pF,16V
C1308	QCTA1CH-330	CAPACITOR	33pF,16V
C1309	QCTA1CH-330	CAPACITOR	33pF,16V
C1314	QCTA1CH-220	CAPACITOR	22pF,16V
C1315	QCTA1CH-131	CAPACITOR	130pF,16V
C1318	QCTA1CH-330	CAPACITOR	33pF,16V
C1401	QETC1HM-106	E CAPACITOR	10μF,50V
C1402	QETC1HM-106	E CAPACITOR	10μF,50V
C1403	QCYA1HK-103	CAPACITOR	0.01μF,50V
C1404	QETC1HM-106	E CAPACITOR	10μF,50V
C1951	QENC1EM-475	NP E CAPACITOR	4.7μF,25V
C1952	QETC1HM-475	E CAPACITOR	4.7μF,50V
C1953	QCYA1HK-103	CAPACITOR	0.01μF,50V
C1954	QETC1HM-106	E CAPACITOR	10μF,50V
L1	PELN0530-101JZ	COIL	100μH
L2	PELN1203	COIL	

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	L3	PU59152-5R6J	COIL	5.6μH
	L4	PELN0530-101JZ	COIL	100μH
	L5	PU59152-820J	COIL	82μH
	L6	PELN0530-101JZ	COIL	100μH
	L7	PU59152-221J	COIL	220μH
	L9	PU59152-101J	COIL	100μH
	L10	PU59152-221J	COIL	220μH
	L11	PELN0530-331JZ	COIL	330μH
	L12	PU59152-470J	COIL	47μH
	L101	PELN0530-101JZ	COIL	100μH
	L103	PU59152-181J	COIL	180μH
	L301	PU58308-123J	COIL	12mH
	L501	PELN0530-100JZ	COIL	10μH
	L502	PU59152-101J	COIL	100μH
	L703	PU48530-100K	COIL	10μH
	L951	PELN0687	COIL	
	L953	PELN0687	COIL	
	L1002	PU59152-R22J	COIL	0.22μH
	L1003	PU59152-1R0J	COIL	1μH
	L1081	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
	L1101	PU59152-270J	COIL	27μH
	L1301	PELN0530-101JZ	COIL	100μH
	L1302	PU59152-220J	COIL	22μH
	L1303	PU59152-220J	COIL	22μH
	L1304	PU59152-2R2J	COIL	2.2μH
	L1305	PU59152-330J	COIL	33μH
	L1402	QRD161J-221	RESISTOR	220Ω,1/6W
	L1403	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
⚠	CF701	PEVB0594-Z	RESONATOR	
⚠	X1	PEVB0658	CRYSTAL RESONATOR	
⚠	X701	PEVB0422	CRYSTAL RESONATOR	
	K901	PELN0662-Z	FERRATE BEADS	
⚠	PC901	PC123FY2	PH COUPLER	
	PS701	PU61433	REEL SENSOR	
	PS702	PU61433	REEL SENSOR	
⚠	T301	PELN0860	OSC TRANSFORMER	
⚠	T302	PELN0861	OSC TRANSFORMER	
⚠	T901	PELN1173	SW TRANS	
	T1001	PELN0806	COIL	
	BK1	PQ21944-1-1	TRANS BKT	
	ET2	PQ46601	EARTH PLATE	
	HD1	PEME0978	HOLDER,PDC	
⚠	HS1	PQ45788-1-1	HEAT SINK,Q901	
	W1	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
	W2	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
⚠	FC901	PEMC0965-Z	FUSE CLIP,F901	
⚠	FC902	PEMC0965-Z	FUSE CLIP,F901	
⚠	LF901	PELN1204	LINE FILTER	
⚠	LF902	PELN0876	LINE FILTER	
	TUI	PERF0259	IF UNIT	
	OT2	SDST3006Z	SCREW,Q901	
	OT3	PQ46408-1-2	SENSOR CAP,X2 Q704 Q705	
	SD1	PQ35384	SHIELD CASE	
	SD2	PQ46515	SHIELD PLATE	
⚠	TU1	PERF0259	IF UNIT	
⚠	TU1001	PERF0202	TUNER UNIT	
	CN101	PEMC1163-009	CONNECTOR,(1-9)UPPER DRUM	
	CN301	PU60727-7	CONNECTOR,(1-7)A/C HEAD	
	CN302	PU60727-2	CONNECTOR,(1-2)FE HEAD	
	CN701	PEMC1077	CONNECTOR,(1-8)CAP MDA	
	CN702	PU61434-1-1	CONNECTOR,(1-5)ROTARY ENCODER	
	CN703	PU60910-2	CONNECTOR,(1-2)LOADING MOTOR	

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	CN705	PU59555-8	CONNECTOR,(1-8)JOG/SHUTTLE	
	CN751	PEMC0714-008	CONNECTOR,(1-8)RDC/ATS+	
	CN802	PEMC1101-013	CONNECTOR,(1-13)DISPLAY	
⚠	CN901	PU60250-2	CONNECTOR,(1-2)AC IN	
	CN1102	PEMC1101-004	CONNECTOR,(1-4)DRUM MOTOR	
	CN1401	PEMC1168-017	CONNECTOR,(1-17)TERMINAL	
	CN1402	PEMC1168-018	CONNECTOR,(1-18)TERMINAL	
	CN1403	PEMC1101-007	CONNECTOR,(1-7)SW/JACK	
⚠	CP701	ICP-N25	CIRCUIT PROTECTOR	
⚠	CP901	ICP-N20	CIRCUIT PROTECTOR	
⚠	CP902	ICP-N25	CIRCUIT PROTECTOR	
⚠	CP1101	ICP-N15	CIRCUIT PROTECTOR	
⚠	F901	QMF51E2-1R25J1	FUSE	T1.2A

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TERMINAL BOARD ASSEMBLY <06>

PW1	PB10994C	TERMINAL BOARD ASSEMBLY,J638E	
	PB10994F	TERMINAL BOARD ASSEMBLY,J638EH	
IC201	BA7630S	IC	
IC601	BA3129	IC	
Q201	2SA1576(QRS)	TRANSISTOR	
	or 2SB1218A(QRS)	TRANSISTOR	
Q202	2SA1576(QRS)	TRANSISTOR	
	or 2SB1218A(QRS)	TRANSISTOR	
Q203	2SC4081(QRS)	TRANSISTOR	
	or 2SD1819A(QRS)	TRANSISTOR	
Q204	2SA1576(QRS)	TRANSISTOR	
	or 2SB1218A(QRS)	TRANSISTOR	
Q205	2SA1576(QRS)	TRANSISTOR	
	or 2SB1218A(QRS)	TRANSISTOR	
Q206	2SC4081(QRS)	TRANSISTOR	
	or 2SD1819A(QRS)	TRANSISTOR	
Q208	2SD1450S,T	TRANSISTOR	
	or 2SD1302(ST)	TRANSISTOR	
Q601	DTC144WU	TRANSISTOR	
	or UN521E	TRANSISTOR	
Q1411	2SA1576(QRS)	TRANSISTOR	
	or 2SB1218A(QRS)	TRANSISTOR	
Q1412	2SA933S(QRS)	TRANSISTOR	
	or 2SA1267(YG)-TJK	TRANSISTOR	
D202	MTZ12AT-77	ZENER DIODE	
R201	QRD123J-331SX	RESISTOR	330Ω,1/2W
R202	QRSA08J-750YN	RESISTOR	75Ω,1/10W
R203	QRSA08J-123YN	RESISTOR	12kΩ,1/10W
R204	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
R205	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R206	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R207	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R208	QRSA08J-152YN	RESISTOR	1.5kΩ,1/10W
R209	QRSA08J-335YN	RESISTOR	3.3MΩ,1/10W
R210	QRD123J-331SX	RESISTOR	330Ω,1/2W
R211	QRSA08J-750YN	RESISTOR	75Ω,1/10W
R212	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R213	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R214	QRSA08J-222YN	RESISTOR	2.2kΩ,1/10W
R215	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R216	QRSA08J-103YN	RESISTOR	10kΩ,1/10W

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
R217	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R218	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R221	QRSA08J-750YN	RESISTOR	75Ω,1/10W
R222	QRSA08J-750YN	RESISTOR	75Ω,1/10W
R225	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
R226	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
R227	QRSA08J-101YN	RESISTOR	100Ω,1/10W
R228	QRSA08J-221YN	RESISTOR	220Ω,1/10W
R601	QRSA08J-0R0Y	RESISTOR,J638E	0Ω,1/10W
	QRSA08J-333YN	RESISTOR,J638EH	33kΩ,1/10W
R602	QRSA08J-103YN	RESISTOR,J638EH	10kΩ,1/10W
R603	QRSA08J-0R0Y	RESISTOR,J638E	0Ω,1/10W
	QRSA08J-333YN	RESISTOR,J638EH	33kΩ,1/10W
R604	QRSA08J-103YN	RESISTOR,J638EH	10kΩ,1/10W
R605	QRSA08J-473YN	RESISTOR	47kΩ,1/10W
R606	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R607	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R608	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R609	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R610	QRSA08J-101YN	RESISTOR	100Ω,1/10W
R611	QRSA08J-101YN	RESISTOR	100Ω,1/10W
R612	QRSA08J-101YN	RESISTOR	100Ω,1/10W
R613	QRSA08J-101YN	RESISTOR	100Ω,1/10W
R614	QRSA08J-101YN	RESISTOR	100Ω,1/10W
R615	QRSA08J-101YN	RESISTOR	100Ω,1/10W
R1411	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R1412	QRD123J-331SX	RESISTOR	330Ω,1/2W
R1413	QRSA08J-393YN	RESISTOR	39kΩ,1/10W
R1414	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R1415	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R1416	QRD162J-0R0	RESISTOR	0Ω,1/6W
R1417	QRD162J-0R0	RESISTOR	0Ω,1/6W
R1418	QRD161J-0R0	RESISTOR	0Ω,1/6W
C201	QETA0JM-477	E CAPACITOR	470μF,6.3V
C203	QCYA1HK-103	CAPACITOR	0.01μF,50V
C204	QETA1CM-337	E CAPACITOR	330μF,16V
C205	QEKJ0JM-476	E CAPACITOR	47μF,6.3V
C206	QCYA1EK-104	CAPACITOR	0.1μF,25V
C207	QEKJ1HM-474	E CAPACITOR	0.47μF,50V
C208	QEP61HM-474	NP E CAPACITOR	0.47μF,50V
C209	QEP61HM-105	NP E CAPACITOR	1μF,50V
C210	QEKJ1HM-105	E CAPACITOR	1μF,50V
C211	QETA0JM-477	E CAPACITOR	470μF,6.3V
C213	QCTA1CH-330	CAPACITOR	33pF,16V
C221	QEKJ1CM-476	E CAPACITOR	47μF,16V
C601	QEKJ1CM-106	E CAPACITOR	10μF,16V
C602	QEKJ1CM-476	E CAPACITOR	47μF,16V
C603	QEKJ1CM-106	E CAPACITOR	10μF,16V
C604	QEKJ1CM-476	E CAPACITOR	47μF,16V
C1411	QCYA1HK-681	CAPACITOR	680pF,50V
C1412	QCYA1HK-681	CAPACITOR	680pF,50V
C1413	QCYA1HK-102	CAPACITOR	0.001μF,50V
C1414	QCYA1HK-102	CAPACITOR	0.001μF,50V
C1417	QCYA1HK-681	CAPACITOR	680pF,50V
C1418	QCYA1HK-681	CAPACITOR	680pF,50V
C1424	QCYA1HK-681	CAPACITOR	680pF,50V
C1425	QCYA1HK-681	CAPACITOR	680pF,50V
C1426	QCTA1CH-330	CAPACITOR	33pF,16V
L204	PU59152-1R0J	COIL	1μH
L1411	PU59152-2R2J	COIL	2.2μH
L1412	PU59152-2R2J	COIL	2.2μH
L1413	PU59152-4R7J	COIL	4.7μH

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
L1414	PU59152-4R7J	COIL	4.7μH
L1415	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
L1416	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
L1417	PU59152-R33J	COIL	0.33μH
L1418	PU59152-4R7J	COIL	4.7μH
L1419	PU59152-4R7J	COIL	4.7μH
L1422	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
L1423	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
L1424	PU59152-1R0J	COIL	1μH
L1426	PU59152-4R7J	COIL	4.7μH
L1427	PU59152-4R7J	COIL	4.7μH
L1428	PU59152-R47J	COIL	0.47μH
L1429	PU59152-1R0J	COIL	1μH
EQ201	PELN0877	EQUALIZER	
S1411	PESW0695	SLIDE SWITCH	
W201	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
W202	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
W203	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
W204	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
W205	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
W206	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
W207	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
J1411	PEMC1019	RGB21PIN SOCKET,AV1	
J1412	PEMC1019	RGB21PIN SOCKET,AV2	
J1413	PEMC1009-02	PIN JACK,A OUT(R)	
J1414	PEMC1009-03	PIN JACK,A OUT(L)	
J1415	PU60659	MINI JACK,PAUSE/RAE	
ET1	PQ21987	E.PLATE(TERM.)	
TB1	PQ35509M-2	TERMINAL BOARD ASSY	
OT1	SDSF3008Z	SCREW,X7 TERMINAL BOARD	
CN1411	PEMC1167-117	CONNECTOR,(1-17)MAIN	
CN1412	PEMC1167-118	CONNECTOR,(1-18)MAIN	

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AUDIO/CONTROL HEAD BOARD ASSY <12>

PW1	PB40068A-01	A/CTL HEAD BOARD ASSEMBLY
CN1	PU60910-107	CONNECTOR,(1-7) MAIN

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DEMOD BOARD ASSEMBLY <14>

PW1	PB10974B	DEMOD BOARD ASSEMBLY,J638EH
	PB10974C	DEMOD BOARD ASSEMBLY,J638E
IC1501	UPC1391H	IC
IC1502	TDA8415	IC
	or TDA8416	IC
IC1503	SAA7283ZP	IC,J638EH
Q1501	2SC3354	TRANSISTOR,J638EH
Q1507	DTC114EU	TRANSISTOR,J638E
	or UN5211	TRANSISTOR,J638E

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
Q1508	DTC114EU	TRANSISTOR,J638E	
	or UN5211	TRANSISTOR,J638E	
D1502	1SV214	DIODE,J638EH	
D1503	1N4148M	DIODE,J638EH	
	or 1SS133	DIODE,J638EH	
R1501	QRSA08J-822YN	RESISTOR,J638EH	8.2kΩ,1/10W
R1502	QRSA08J-332YN	RESISTOR,J638EH	3.3kΩ,1/10W
R1503	QRSA08J-681YN	RESISTOR,J638EH	680Ω,1/10W
R1504	QRSA08J-271YN	RESISTOR,J638EH	270Ω,1/10W
R1505	QRSA08J-470YN	RESISTOR,J638EH	47Ω,1/10W
R1514	QRSA08J-391YN	RESISTOR	390Ω,1/10W
R1515	QRSA08J-271YN	RESISTOR	270Ω,1/10W
R1516	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
R1518	QRSA08J-561YN	RESISTOR	560Ω,1/10W
R1519	QRSA08J-471YN	RESISTOR	470Ω,1/10W
R1520	QRSA08J-222YN	RESISTOR,J638EH	2.2kΩ,1/10W
	QRSA08J-392YN	RESISTOR,J638E	3.9kΩ,1/10W
R1521	QRSA08J-102YN	RESISTOR,J638E	1kΩ,1/10W
	QRSA08J-272YN	RESISTOR,J638EH	2.7kΩ,1/10W
R1522	QRSA08J-392YN	RESISTOR,J638E	3.9kΩ,1/10W
	QRSA08J-222YN	RESISTOR,J638EH	2.2kΩ,1/10W
R1523	QRSA08J-272YN	RESISTOR,J638EH	2.7kΩ,1/10W
	QRSA08J-102YN	RESISTOR,J638E	1kΩ,1/10W
R1524	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
R1527	QRSA08J-333YN	RESISTOR,J638EH	33kΩ,1/10W
R1528	QRSA08J-182YN	RESISTOR,J638EH	1.8kΩ,1/10W
R1529	QRSA08J-0R0Y	RESISTOR,J638E	0Ω,1/10W
	QRSA08J-222YN	RESISTOR,J638EH	2.2kΩ,1/10W
R1530	QRSA08J-222YN	RESISTOR,J638EH	2.2kΩ,1/10W
R1531	QRSA08J-0R0Y	RESISTOR,J638E	0Ω,1/10W
	QRSA08J-222YN	RESISTOR,J638EH	2.2kΩ,1/10W
R1532	QRSA08J-222YN	RESISTOR,J638EH	2.2kΩ,1/10W
R1533	QRSA08J-102YN	RESISTOR,J638EH	1kΩ,1/10W
R1534	QRSA08J-101YN	RESISTOR,J638EH	100Ω,1/10W
R1535	QRSA08J-103YN	RESISTOR,J638EH	10kΩ,1/10W
R1536	QRSA08J-223YN	RESISTOR,J638EH	22kΩ,1/10W
R1537	QRSA08J-105YN	RESISTOR,J638EH	1MΩ,1/10W
R1538	QRSA08J-684YN	RESISTOR,J638EH	680kΩ,1/10W
R1540	QRSA08J-101YN	RESISTOR,J638EH	100Ω,1/10W
R1541	QRSA08J-101YN	RESISTOR	100Ω,1/10W
R1542	QRSA08J-470YN	RESISTOR,J638EH	47Ω,1/10W
R1543	QRD161J-220	RESISTOR,J638EH	22Ω,1/6W
VR1501	QVZ3521-103	V RESISTOR, SEPARATION	
C1501	QCYA1HK-103	CAPACITOR,J638EH	0.01μF,50V
C1502	QCYA1HK-103	CAPACITOR,J638EH	0.01μF,50V
C1503	QCYA1HK-103	CAPACITOR,J638EH	0.01μF,50V
C1508	QCYA1HK-103	CAPACITOR,J638EH	0.01μF,50V
C1510	QCTA1CH-220	CAPACITOR	22pF,16V
C1511	QCYA1HK-103	CAPACITOR	0.01μF,50V
C1512	QCYA1EK-473	CAPACITOR	0.047μF,25V
C1513	QCYA1HK-103	CAPACITOR	0.01μF,50V
C1514	QCYA1HK-103	CAPACITOR	0.01μF,50V
C1515	QEKJ1HM-225	E CAPACITOR	2.2μF,50V
C1516	QEKJ1HM-225	E CAPACITOR	2.2μF,50V
C1520	QCYA1HK-682	CAPACITOR,J638EH	0.0068μF,50V
C1521	QCYA1HK-682	CAPACITOR,J638EH	0.0068μF,50V
C1525	QCYA1HK-103	CAPACITOR,J638EH	0.01μF,50V
C1526	QEKJ1CM-106	E CAPACITOR,J638EH	10μF,16V
C1527	QCYA1EK-473	CAPACITOR,J638EH	0.047μF,25V
C1528	QEKJ1HM-224	E CAPACITOR,J638EH	0.22μF,50V
C1529	QEKJ1CM-106	E CAPACITOR	10μF,16V
C1530	QEKJ1HM-104	E CAPACITOR,J638EH	0.1μF,50V

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
C1531	QEKJ1CM-106	E CAPACITOR	10μF,16V
C1532	QCYA1HK-103	CAPACITOR,J638EH	0.01μF,50V
C1533	QEKJ1HM-224	E CAPACITOR,J638EH	0.22μF,50V
C1534	QCYA1HK-103	CAPACITOR,J638EH	0.01μF,50V
C1535	QEKJ1CM-336	E CAPACITOR,J638EH	33μF,16V
C1538	QCYA1HK-103	CAPACITOR,J638EH	0.01μF,50V
C1539	QEKJ1CM-106	E CAPACITOR,J638EH	10μF,16V
C1540	QCTA1CH-100	CAPACITOR,J638EH	10pF,16V
C1541	QEKJ1CM-106	E CAPACITOR,J638EH	10μF,16V
C1542	QCTA1CH-221	CAPACITOR,J638EH	220pF,16V
C1543	QCYA1HK-103	CAPACITOR,J638EH	0.01μF,50V
C1544	QEKJ1CM-106	E CAPACITOR,J638EH	10μF,16V
C1545	QCYA1HK-103	CAPACITOR,J638EH	0.01μF,50V
C1546	QEKJ1HM-105	E CAPACITOR,J638EH	1μF,50V
C1548	QCYA1HK-103	CAPACITOR,J638EH	0.01μF,50V
C1549	QCYA1EK-223	CAPACITOR,J638EH	0.022μF,25V
C1550	QEKJ1HM-334	E CAPACITOR,J638EH	0.33μF,50V
C1551	QCTA1CH-101	CAPACITOR,J638EH	100pF,16V
C1552	QCTA1CH-101	CAPACITOR,J638EH	100pF,16V
C1553	QCYA1HK-103	CAPACITOR,J638EH	0.01μF,50V
C1554	QCYA1EK-473	CAPACITOR,J638EH	0.047μF,25V
C1556	QCTA1CH-101	CAPACITOR	100pF,16V
C1557	QCTA1CH-101	CAPACITOR	100pF,16V
L1501	PU59152-4R7J	COIL,J638EH	4.7μH
L1502	PU59152-1R0J	COIL,J638EH	1μH
L1505	PU59152-120J	COIL,J638EH	12μH
CF1503	PEVB0677	C DISCRIMINATER	
CF1504	PU52775-2	CERAMIC FILTER	
LC1501	PU59736-102	N FILTER,J638EH	
LC1502	PU59736-102	N FILTER,J638EH	
⚠ X1501	PEVB0479	CRYSTAL RESONATOR	
⚠ X1502	PEVB0660	CRYSTAL RESONATOR,J638EH	
W1506	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
W1507	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
W1508	QRSA08J-0R0Y	RESISTOR,J638EH	0Ω,1/10W
W1509	QRSA08J-0R0Y	RESISTOR,J638EH	0Ω,1/10W
W1510	QRSA08J-0R0Y	RESISTOR,J638EH	0Ω,1/10W
SD1	PQ35058-1-3	SHIELD COVER,X2	
SD2	PQ35057	SHIELD FRAME	
CN1501	PEMC0712-108	PIN HEADER,(2-9)MAIN J638EH	
	PEMC0712-109	PIN HEADER,(1-9)MAIN J638E	
CN1502	PEMC0712-105	PIN HEADER,(2-6)MAIN	

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SW/DISPLAY BOARD ASSEMBLY <28>

PW1	PB10973H1	DISPLAY BOARD ASSEMBLY,J638E
	PB10973K1	DISPLAY BOARD ASSEMBLY,J638EH
IC1201	UPD16311GC(P)	IC
	or UPD16311GC(K)	IC
	or UPD16311GC(E)	IC
IC1202	SPS-442-1	IR DETECT UNIT
	or GP1U581X	IR DETECT UNIT
	or HC-377J	IR DETECT UNIT
D1201	1N4148M	DIODE
	or 1SS132Y	DIODE

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
D1202	1N4148M	DIODE	
	or 1SS132Y	DIODE	
D1203	1N4148M	DIODE	
	or 1SS132Y	DIODE	
D1204	1N4148M	DIODE	
	or 1SS132Y	DIODE	
D1210	RD3.3ES-T1B2	ZENER DIODE	
D1212	SLR-342MC3F	LE DIODE,JUST REC	
D1220	1N4148M	DIODE,J638EH	
	or 1SS132Y	DIODE,J638EH	
R1201	QRD161J-333	RESISTOR	33kΩ,1/6W
R1202	QRD161J-333	RESISTOR	33kΩ,1/6W
R1203	QRD161J-333	RESISTOR	33kΩ,1/6W
R1204	QRD161J-333	RESISTOR	33kΩ,1/6W
R1205	QRD161J-472	RESISTOR	4.7kΩ,1/6W
R1206	QRD161J-472	RESISTOR	4.7kΩ,1/6W
R1207	QRD162J-102	RESISTOR	1kΩ,1/6W
R1208	QRD161J-563	RESISTOR	56kΩ,1/6W
R1209	QRD161J-103	RESISTOR	10kΩ,1/6W
R1210	QRD161J-103	RESISTOR	10kΩ,1/6W
R1211	QRD161J-103	RESISTOR	10kΩ,1/6W
R1212	QRD161J-472	RESISTOR	4.7kΩ,1/6W
R1213	QRD161J-472	RESISTOR	4.7kΩ,1/6W
R1214	QRD161J-333	RESISTOR	33kΩ,1/6W
R1218	QRD161J-331	RESISTOR	330Ω,1/6W
R1225	QRD161J-333	RESISTOR	33kΩ,1/6W
R1226	QRD161J-333	RESISTOR	33kΩ,1/6W
R1227	QRD161J-333	RESISTOR	33kΩ,1/6W
R1228	QRD161J-333	RESISTOR	33kΩ,1/6W
C1201	QETC1CM-336	E CAPACITOR	33μF,16V
C1202	QCFB1HZ-104	CAPACITOR	0.1μF,50V
C1203	QETC1HM-106	E CAPACITOR	10μF,50V
C1204	QCSB1HJ-330	CAPACITOR	33pF,50V
C1205	QCSB1HJ-330	CAPACITOR	33pF,50V
C1206	QETC0JM-227	E CAPACITOR	220μF,6.3V
C1207	QCVB1CN-103	CAPACITOR	0.01μF,16V
C1210	QCC11EJ-473	CAPACITOR	0.047μF,25V
C1211	QCC11EJ-473	CAPACITOR	0.047μF,25V
L1201	PU48530-101K	COIL	100μH
S1205	PESW0525-02Z	TACT SWITCH,PAUSE	
S1206	PESW0525-02Z	TACT SWITCH,REC/ITR	
S1207	PESW0525-02Z	TACT SWITCH,PLAY	
S1208	PESW0525-02Z	TACT SWITCH,STOP/EJECT	
S1212	PESW0525-02Z	TACT SWITCH,A DUB J638E	
	or PU60392-2-2	TACT SWITCH,A DUB J638E	
	or PU60975-2Z	TACT SWITCH,A DUB J638E	
S1213	PESW0525-02Z	TACT SWITCH,REVIEW	
S1215	PESW0525-02Z	TACT SWITCH,SP/LP J638EH	
S1216	PESW0525-02Z	TACT SWITCH,JUST REC	
S1242	PU61320	PUSH SWITCH	
	or PESW0674	PUSH SWITCH	
DI1201	PEDP0189-02	FLUORESCENT DISPLAY PANEL	
HD1	PQM30038-6	LED HOLDER,D1212	
HD2	PQ34668	FDP HOLDER(L),DI1201	
HD3	PQ34669	FDP HOLDER(R),DI1201	
CN1201	PEMC1101-113	CONNECTOR,(1-13)MAIN	
CN1202	PEMC0724-007	CONNECTOR,(1-7)SW/JACK	

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION

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REC SAFETY BOARD ASSEMBLY <32>

PW3	PB10973A3	REC SAFETY BOARD ASSEMBLY
S1241	PESW0589	PUSH SWITCH,REC SAFETY SW
FW1201	PW30101-60AA442	PARALLEL WIRE,REC SAFETY

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CASSETTE SW BOARD ASSEMBLY <33>

PW4	PB10973A4	CASSETTE SW BOARD ASSEMBLY
S1242	PU61320	PUSH SWITCH,CASSETTE SWITCH
FW1202	PW30101-60AA442	PARALLEL WIRE,CASSETTE SWITCH

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SW/JACK BOARD ASSEMBLY <36>

PW2	PB10973H2	SW/JACK BOARD ASSEMBLY	
D1235	1SS133	DIODE	
	or 1N4148M	DIODE	
	or MA165	DIODE	
D1236	1SS133	DIODE	
	or 1N4148M	DIODE	
	or MA165	DIODE	
R1230	QRD161J-750	RESISTOR	75Ω,1/6W
C1213	QCBB1HJ-561	CAPACITOR	560pF,50V
C1214	QCBB1HJ-561	CAPACITOR	560pF,50V
C1215	QCBB1HJ-561	CAPACITOR	560pF,50V
C1216	QCBB1HJ-561	CAPACITOR	560pF,50V
L1203	PU59152-1R8J	COIL	1.8μH
L1204	PU59152-1R8J	COIL	1.8μH
S1201	PESW0525-02Z	TACT SWITCH,TV PROG +	
S1202	PESW0525-02Z	TACT SWITCH,TV PROG –	
S1203	PESW0525-02Z	TACT SWITCH,OPERATE	
S1210	PESW0525-02Z	TACT SWITCH,TIMER	
S1212	PESW0525-02Z	TACT SWITCH	
J1201	PEMC1063-04	PIN JACK(SW),VIDEO	
J1202	PEMC1063-03	PIN JACK(SW),L	
J1203	PEMC1063-02	PIN JACK(SW),R	
CN1203	PEMC0723-007	CONNECTOR,(1-7)DISPLAY	
CN1204	PEMC1101-107	CONNECTOR,(1-7)MAIN	

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PDC BOARD ASSEMBLY <70>

PW5	PB10973H5	PDC BOARD ASSEMBLY	
IC1901	MV1822	IC	
Q1901	DTC144ES	TRANSISTOR	
R1902	QRD161J-472	RESISTOR	4.7kΩ,1/6W

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	R1903	QRD161J-221	RESISTOR	220Ω,1/6W
	R1904	QRD161J-221	RESISTOR	220Ω,1/6W
	R1908	QRD161J-473	RESISTOR	47kΩ,1/6W
	R1909	QRD162J-221	RESISTOR	220Ω,1/6W
	C1901	QCSB1HJ-560	CAPACITOR	56pF,50V
	C1902	QCSB1HJ-560	CAPACITOR	56pF,50V
	C1904	QFV21HJ-184	F CAPACITOR	0.18μF,50V
	C1906	QFV21HJ-184	F CAPACITOR	0.18μF,50V
	C1908	QCVB1CN-103	CAPACITOR	0.01μF,16V
	C1909	QEKJ1CM-476	E CAPACITOR	47μF,16V
	C1914	QFV21HJ-103	F CAPACITOR	0.01μF,50V
	C1915	QCSB1HJ-680	CAPACITOR	68pF,50V
	LC1901	PELN1226-03Z	NOISE FILTER	
	LC1902	PU59736-103	NOISE FILTER	
	LC1903	PELN1226-03Z	NOISE FILTER	
	LC1904	PELN1226-03Z	NOISE FILTER	
	LC1906	PELN1226-03Z	NOISE FILTER	
⚠	X1901	PEVB0551	CRYSTAL RESONATOR	
	SD1	PU61069-1-2	SHIELD CASE	
	SD2	PU61070	SHIELD COVER	
	SD3	PU61071	SHIELD PLATE	
	CN1901	PEMC0713-108	CONNECTOR,(1-8)MAIN	

SECTION 6
TECHNICAL INFORMATION

6.1 SYSCON CIRCUIT

6.1.1 Syscon CPU pin function(IC701) 1/2

PIN NO.	LABEL	IN/OUT	NOTE
1	A.LVL.R	IN	AUDIO INDICATOR LEVEL INPUT(Rch)
2	A.LVL.L	IN	AUDIO INDICATOR LEVEL INPUT(Lch)
3	IF AGC	IN	IF AGC DETECT
4	VIDEO ENV	IN	AUTO TRACKING DATA(AVRG VOLTAGE OF PB LEVEL INPUT)
5	AVSS	-	GND
6	TEST	-	GND
7	X2	-	TIMER CLOCK(32.768KHz)
8	X1	-	TIMER CLOCK(32.768KHz)
9	VSS	-	GND
10	OSC1	IN	SYSTEM CLOCK(10MHz)
11	OSC2	OUT	SYSTEM CLOCK(10MHz)
12	RESET	IN	RESET AT CONNECT VCR TO AC
13	(NMI)	-	NC
14	STTS	IN	LEADER TAPE DETECT(DETECT ON:L)
15	SHUTTLE	IN	SHUTTLE SWITCH
16	JSA	IN	JOG DIAL PULSE INPUT(A)
17	JSB	IN	JOG DIAL PULSE INPUT(A)
18	END.S	IN	TRAILER TAPE DETECT(DETECT ON:L)
19	SYNC DET	IN	SYNC DETECT(NO SYNC:H)
20	LOCK DET	IN	TUNING LOCK CHECK
21	R.PAUSE	IN	REMOTE PAUSE CONTROL(PAUSE ON:L)
22	TU FG	IN	TAKE-UP REEL ROTATION DET/TAPE REMAIN
23	SUP FG	IN	SUPPLY REEL ROTATION DET/TAPE REMAIN
24	PDC	OUT	PROGRAMME DELIVERY CONTROL
25	EE	OUT	EE MODE:L
26	AUX	OUT	AUX MODE:L
27	NC	-	NC
28	PLL DATA	OUT	TUNING IC DATA
29	PLL CE	OUT	TUNING IC CHIP ENABLE
30	MODE1	-	MODE1 SELECT
31	LCM3	OUT	LOADING MOTOR DRIVE(3)
32	CH+/DATA	OUT	IIL LOGIC CTL DATA
33	REC ST(H)	OUT	REC START:H
34	B/W	OUT	BLACK/WHITE SWITCH DETECT
35	V.REC(H)	OUT	VIDEO REC MODE:H
36	I2C SCL	OUT	NICAM DATA TRANSFER CLOCK
37	I2C SDA	OUT	NICAM CONTROL DATA OUTPUT
38	I.EXP CLK	OUT	EXPANDER IC(IC706) TRANSFER CLOCK
39	I.EXP DATA	OUT	EXPANDER IC(IC706) SERIAL DATA
40	RAE	OUT	REMOTE PAUSE CONTROL OUTPUT

Table 6-1-1 SYSCON CPU pin function(1/2)

6.1.2 Syscon CPU pin function(IC701) 2/2

PIN NO.	LABEL	IN/OUT	NOTE
41	DOC OPT	IN	DOCTOR PROGRAM DETECT
42	MODE2	-	NC
43	D.MUTE	OUT	DEMODULATOR AUDIO MUTE CONTROL(MUTE ON:H)
44	OSD CE	OUT	ON SCREEN IC CHIP ENABLE
45	VPCTL	OUT	V.PULSE ADDITION TIMING CONTROL
46	EXP DATA	OUT	EXPANDER IC(IC705) DATA OUTPUT
47	COM CLOCK	OUT	MEMORY IC DATA TRANSFER CLOCK
48	H REC ST	OUT	HiFi AUDIO REC START:L
49	-	-	GND
50	RC IN	IN	REMOTE CONTROL DATA INPUT
51	A.MUTE	OUT	AUDIO MUTE CONTROL(MUTE ON:H)
52	CTL C/D	IN	CTL PULSE INPUT(MODE DETECT/BLANK PORTION DET)
53	P.MUTE	OUT	PICTURE MUTE CONTROL(MUTE:L)
54	V.UP	OUT	CAPSTAN MOTOR VOLTAGE UP
55	CAP REV	OUT	CAPSTAN MOTOR CONTROL(FWD:H/REV:L)
56	DUTY I/O	IN/OUT	IN/OUT INDEX DATA CONTROL
57	S-OUT	OUT	ON SCREEN CONTROL DATA
58	S-IN	IN	ON SCREEN/FDP CONTROL DATA
59	S-CLK	OUT	DATA TRANSFER CLOCK
60	H DATA	OUT	VIDEO IC CONTROL DATA
61	STB	OUT	CLOCK OUTPUT PERMISSION
62	H CLK	OUT	VIDEO IC DATA TRANSFER CLOCK
63	VCC	-	SYSTEM POWER
64	S.DATA	OUT	SERVO IC CONTROL DATA
65	SERVO	OUT	CAPSTAN MOTOR CONTROL(SERVO:L/SYSCON:H)
66	PAUSE(L)	OUT	CAPSTAN MOTOR CONTROL(PAUSE:L)
67	CTL CLOCK	IN	INDEX CONTROL
68	LCM1	OUT	LOADING MOTOR DRIVE(1)
69	CAP FG	IN	TAPE SPEED DETECT/BACK SPACE COUNT
70	LCM2	OUT	LOADING MOTOR DRIVE(2)
71	D.FF	IN	DRUM ROTATION DETECT/REC TIMING CONTROL
72	AVCC	-	SYSTEM POWER(for ANALOG)
73	AUDIO ENV	IN	AUTO TRACKING DATA(AVRG VOLTAGE OF PB LEVEL INPUT)
74	PROTECT	IN	SWD5V/12V DETECT
75	DRUM V	OUT	DRUM MOTOR VOLTAGE CONTROL
76	CAP V	OUT	CAPSTAN MOTOR VOLTAGE DETECT
77	6.5H DET	IN	PB SWITCHING POINT ADJUST PULSE
78	DV DET	IN	DRUM DRIVE VOLTAGE DET
79	P.DOWN	IN	POWER DOWN DETECT(POWER DOWN:L)
80	S CURVE	IN	TUNING CHECK

Table 6-1-2 SYSCON CPU pin function(1/2)